A SUPERCHARGER FOR YOUR ENGINE'S OIL SYSTEM. BY BOB

FILTERMAG

Picture this, you've just plunked down a sizeable chunk of your kids future inheritance on a new boat. Or perhaps you've recently mortgaged the farm having that much-horsepowered high-performance engine you've always dreamed of custom built for your beloved water rocket. No matter...this automatically qualifies you as one very dedicated hot-boat owner, someone who is prone to obsession about the most minute detail of your newly acquired equipment. And in your quest to protect and preserve your investment, almost nothing is out of the question when it comes to keeping your engine in its absolute primo running condition for as long as possible.

You've also probably been told, maybe a thousand times or more, that your engine's internal lubrication system is the key factor in maximizing longevity and avoiding premature major mechanical failures. Face it, if your motor oil isn't getting the job done, your engine will be toast in very short order, regardless of whether it's a stone stocker or a radical blown monster.

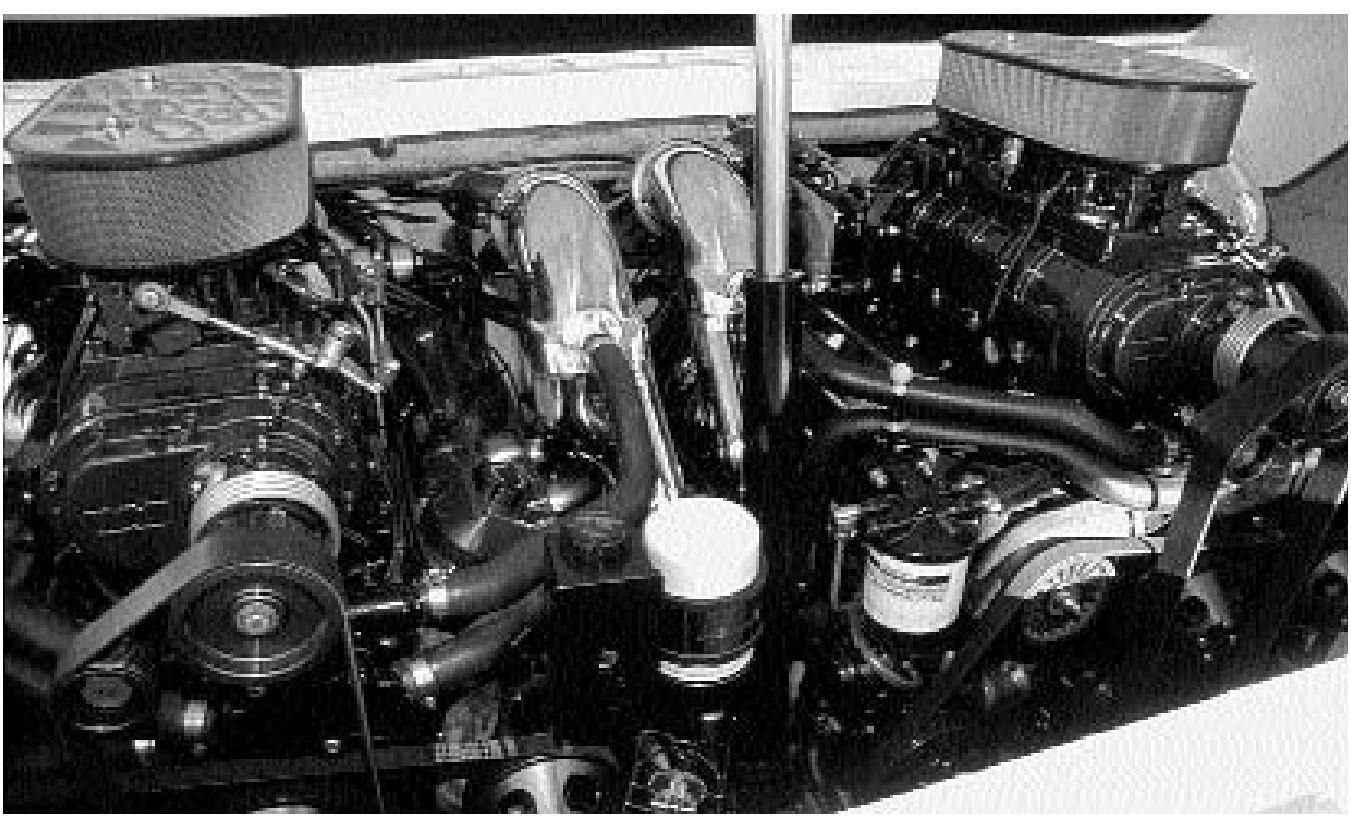
So, is this a story about what brand or type of motor oil is best for your engine? No...because the truth is that just about every major name-brand engine oil on the market is pretty darn good stuff right out of the can. And as long as you use the right weight of oil, keep it at the correct level and change it on a regular basis, you're doing the right thing.

But is there something that you can do to make it even better? Well, we decided to find out for ourselves.

The product is called FilterMAG. You've probably not yet heard about it, since it has just been introduced to the automotive and marine markets in the last couple of months from B&B International, located in Lake Havasu City, Arizona. On the surface, FilterMAG might remind you of something you'd see on a late-night infomercial where the pitch man with the irritating Aussie accent shows and tells his not-so-bright co-host about all the wondrous things that it can do, and all for only three easy installment payments.

But this is definitely not the case. FilterMAG is a lot more about good common sense, years of intensive development and proven technology than those products that routinely scroll across your early-a.m. television screen. What FilterMAG is engineered to accomplish is to significantly improve the internal debris gathering and capture capabilities of a standard oil filter. No, it's not a new type of oil filter, you still have to buy one of those each time you change oil, but it's a separate product (which is reusable forever) that magnetically adheres to the outside of the oil-filter canister. To install it, all you have to do is just get it within a couple of inches of the metal oil-filter canister and let the magnets do the rest. The half-moon-shaped FilterMAG band pulls itself to the side of the canister with incredible force. And if you think you can simply yank it directly off the filter sidewall with your hand, think again. Removal of the FilterMAG band is best done by sliding it sideways along the canister wall.

So what will the FilterMAG do that a normal oil filter won't do by itself? Consider this. Conventional oil filters do their job by having a high volume of oil circulate through an internal filtering element (often paper) designed to catch and collect various ferrous and nonferrous materials that get displaced (eroded) while your engine is running. Oil filters, although good at



what they do, are not 100% perfect when it comes to gathering every internal particle that may be suspended in your engine's oil. Some particles are simply too small to be caught by the filter (usually less than 25 microns), and some bigger, sharper particles also elude capture by simply cutting through the internal paper-filter element. You see evidence of this if you've ever removed a magnetic oil-drain plug from the oil pan and noticed some very fine metal particles clinging to the tip of the plug. Unfortunately, the uncaptured particles in the oil are the true enemy and will accelerate the deterioration of your engine and eventually contribute to a mechanical failure, since they do damage to all sorts of expensive internal rotating parts without you knowing. What FilterMAG does is "supercharge" the oil-filtering process by transmitting intense magnetic energy through the oil-filter canister, causing ferrous/metal particles not caught by the filter to permanently adhere to the interior canister wall. These captured particles are then removed from the lubrication flow path of the engine when the filter is replaced during a normal oil change.

What makes FilterMAG so special is a patented design system that aligns a series of precision ground and arced Neodynium magnets that are incredibly strong. Just one model of FilterMAG Filter has enough magnetic power to lift and support a 600-pound refrigerator! What's also unique is a multilayered exterior flux band composed of low-carbon corrosion-resistant galvaneal steel that flexs, allowing the FilterMAG to adjust its fit to a variety of canister sizes.

Okay, you've got the idea. This is a pretty simple-looking product that makes some pretty big claims. But does it really work?

The only way to honestly determine that is with a controlled test. Our HOT BOAT staff secured a suitable test subject from one of our readers, Jim Salmon, owner of an Advantage 32 Victory powered by a pair of MerCruiser HP 575SCi Sterndrives which was our cover boat back in July 2001. Jim keeps the boat in Lake Havasu, Arizona, and had about 100 hours on the motors when we started the test.

Here's what we did. The process started by taking the boat into Alco Marine for a full oil change and replacement of filters. Each engine was completely drained and refilled with new oil straight out of the can (Valvoline Racing 20W50). We also took a sample of the brand-new oil directly from the can so we could later send it out for a ferrographic analysis. Then a FilterMAG was installed on the starboard engine's new oil filter, and the port engine's new filter was left without.

Jim was then instructed to use the boat

CONTINUED ON PAGE 110

FILTERMAG

CONTINUED FROM PAGE 101

like normal for a few weekends and report back when the hour meter had at least a dozen operating hours. When the call came in, both engines had 15.5 hours of running time.

At the water, we carefully collected oil samples in sterile containers with the engines running at normal oil temperatures (170°-190°). We also removed the oil filter from the starboard engine, being careful not to disturb the location of the FilterMAG unit.

We then sent three oil samples to Analysts, Inc., in Hoffman Estates, Illinois, a very respected independent national testing laboratory, for an analytical ferrography report. The first sample tested was the fresh oil directly from the can. Not surprisingly, the test showed: "Extremely low concentrations of small steel particles, red iron oxides and crystalline dirt particles. There is no evidence of excessive contamination. The largest particle detected measures 15 microns in major dimension."

The second test was made of the oil in the port engine (no FilterMAG) after 15.5 hours of operation. "A low concentration of ferrous rubbing wear particles, most measuring less than 5 microns in size. A few larger steel laminar particles are present, up to 12 microns in size. There is no evidence of severe wear. Also detected are very low concentrations of small red iron oxides and crystalline dirt particles. The particle count is equivalent to in ISO 4406 rating of 22/21/13."

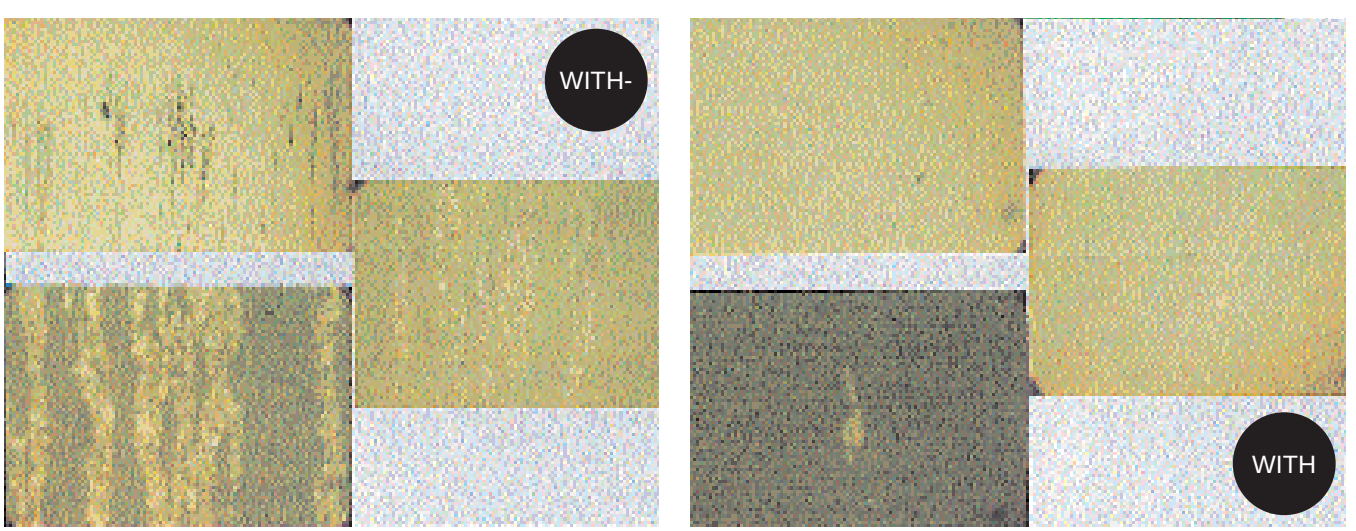
The third test was run on the oil in the starboard engine (with FilterMAG) after 15.5 hours of operation. "A very low concentration of ferrous rubbing wear particles, most less than five microns in size. The largest steel particles observed measured 14 microns in size. Also present are very low concentrations of small 2-10 micron copper alloy and aluminum alloy wear particles. There is no evidence of severe wear. Very low concentrations of small red iron oxides and crystalline dirt particles are present. The particle count is equivalent to an ISO 4406 rating of 22/20/12.

"Compared to the port engine (no FilterMAG) sample, there is 6.2% fewer particles larger than two microns in size; 33.6% fewer particles larger than five microns; and 74% fewer particles larger than 15 microns in size." According to the analytical ferrography report, the oil in the starboard engine (with FilterMAG and after 15.5 hours of running) had exactly the same rating as the new oil out of the can in regard to "rubbing wear," "scuffing wear" and "ferrous oxide content". In layman's terms, there was simply significantly less harmful debris in the oil of the engine with the attached FilterMAG unit when compared directly to the results of the engine equipped with only a standard filter.

To visually check that conclusion, we then cut open the oil filter with the FilterMAG still in place. And is often the case, a picture is worth a thousand words. The inside wall of the canister was neatly defined with minute ferrous particles mirroring the exact imprint of the magnetic pattern of the FilterMAG on the outside. Indeed, a noticeable amount of ferrous particles along with the hint of some sludge had been captured by its strong magnetic attraction.

So, is cleaner oil important to the long-term well being of your engine? You bet it is. Any time you can remove potentially harmful debris from the lubrication system, you've vastly improved your chances of extending the life of your engine and minimizing costly repairs.

Remember, you read about it here first.



Microscopic photos show oil samples without FilterMAG (left) and with FilterMAG (right).