

## What's New in Bypass Filtration (Part 1)

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Increase in popularity among over-the-road operations tied to PM role.

Bypass oil filtration systems, which have been in use for heavy-duty off-road applications for decades, are now becoming increasingly attractive to over-the-road operators because of their role in reducing preventive maintenance costs. These filters can help alleviate the rapid wear problems that occur when small particles of dust ingested into the oil pass straight through conventional full-flow filters, causing severe damage to bearings, valve trains, and piston rings.

Bypass filters work by removing smaller particles from a portion of the oil that is circulating through the system, and returning a steady stream of extremely well-filtered oil. This extends the life of the oil and the full-flow filter, helping to extend time between drain intervals.

For example, the Luber-Finer 750, a high-capacity, remote-mount filter for severe-service use, requires an additional 3.5 gal. of oil but extends the drain interval by up to 35%.

Luber-Finer also makes a spin-on bypass filter for on-road applications that is mounted near the full-flow filter. Model 777 is a lightweight, high-temperature service filter for turbocharged engines.

TF Purifiner's canister-type filter with cotton media features a heated diffuser plate to accelerate vaporization of impurities and maintain oil viscosity. The unit is now equipped with a flow meter that indicates when restriction is too high.

Como has a disposable bypass filter that is designed for all medium- and heavy-duty engine applications. The self-contained filter mounts under the hood or along the frame rail. According to the manufacturer, this unit is less expensive than externally housed units, yet still delivers efficiencies of up to 99% in capturing 1-micron particles.

The Como filter also absorbs the soot produced by diesels, slowing the normal wear cycle. Its disposable, recyclable metal jacket fits conventional filter crushers.

**A new entrant to the American filter market is Kleenoil, which manufactures bypass filters based on technology that was developed here in the 1960s, but failed to attract much interest at the time. It was subsequently taken up with enthusiasm by Japan and Great Britain, where lube oil prices are high.**

## What's New in Bypass Filtration (Part 2)

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**Kleenoil filters remove particles below 1 micron in size, as well as water. This is said to extend the life of the oil tenfold. Units are available for light, heavy-, and super-duty use. Heavy- and medium-duty trucks fitted with the system are said to run for 100,000 miles or one year between oil changes.**

Wix is expanding applications for its full-flow bypass filters in 1997 to most Cummins engines, offering increased reliability in heavy-duty use as a result of a simplified design that features a single sealing grommet.

The Wix unit uses a single self-centering grommet to provide a seal for oil flow between full-flow and bypass media, which are composed of cellulose, polyester, and fiberglass.

AlliedSignal has developed a high-performance stacked disk arrangement using blotting media for bypass filters. Since the filter interacts directly with the oil and the engine, it can play a relatively broad role in system maintenance, according to AlliedSignal's R&D division.

Baldwin Filters has developed a spin-on combination full-flow bypass filter that places the bypass element inside the full-flow element, instead of stacking the two. This allows both elements to occupy almost the full length of the filter housing, providing additional filtration area. All oil passes through the full-flow element, which contains glass impregnated cellulose media. The oil flow is then divided, with the majority going to the engine and the rest undergoing additional polishing in the bypass element.

Stratapore is a new filter media from Fleetguard for the company's line of combination full-flow/bypass units (LF3000, 3458, and 3727). Manufactured from composites of bonded layers of synthetic filter media, Stratapore is said to offer a 50% improvement in cold-flow restriction, providing better engine protection under winter conditions. Pressurization of the engine's main oil galley is improved by about 25%, so lube oil gets to vital engine parts much faster.

Donaldson has a new generation of Synteq Endurance filters for all major engine applications, including bypass systems. Synteq is formulated from tightly controlled synthetic fibers having consistent size and shape.

The small diameter of the Synteq fibers enables media to be spaced more closely and consistently than conventional cellulose media. This allows engineers to design filters with significantly improved efficiency and capacity.