Understanding Engine OIL BYPASS Filtration

By: Dave Cline

Replacement Elements

Do you know the filtration ability of your full flow oil filter? You probably don't unless you have looked online at some of the web sites that seem to have that information through different sources. You may be disappointed to find out that it is poor to terrible and your engine is getting very little protection at all from the contaminants circulating around in the lube system.

As an engine lube oil filter manufacturer we are very sure of our oil filter specs. They are tested many times over using ISO standards and very expensive test equipment to meet the OE (Original Equipment) specifications. Even with all of our technology we are still limited by allowable real-estate in the engine compartment. The limited space only allows for a filter of a certain size which will dictate the amount of media available inside the filter which has everything to do with how well the element performs and for how long.

You may ask what difference it makes as long as I have a real efficient oil filter. The difference is all about the life or capacity of the filter. The high efficiency element could do a great job for a short amount of time until it becomes clogged to a point the safety bypass valve opens. Then the filtration efficiency goes to zero. Dirty oil is purposely sent around the element so that the engine doesn't starve and self-destruct. The down side to the open safety valve is the fact that the oil is unfiltered, and the dirt and other contaminants circulating through the engine reducing engine life.

The two things we deal with as engine oil filter manufacturers are the pore size and contaminant holding ability. A filter can be designed to flow enough oil to lubricate the engine and be very efficient with enough capacity to go many miles, but the over-all size of the filter assembly would make it impossible to place in the engine compartment.

Now that you understand the dilemma of physical filter size versus performance you may ask what can be done to remedy the situation.

The answer is **Bypass Oil Filtration**. The Racor bypass oil filters (cleaners) allow about 5% of the main oil stream flow to be diverted through a very dense element of 3, 5 or 10 micron cellulose media which will allow for polishing of the lube oil and not disrupt the full flow circuit or filter element size.

By utilizing a separate "kidney loop" bypass filtration system we can clean the oil to at least the same cleanliness level it had right out of the bottle from the manufacturer, or cleaner.

The bypass becomes the work horse in the lube system collecting 99% of the contaminants as well as absorbing moisture.

Features and Benefits

- Removes 99% of solid contaminants
- Reduces water concentration to less than 100 ppm
- Eliminates damaging resins and oxidation products
- Extends oil drain intervals
- 2 to 4 times full flow oil filter cartridges
- Extends engine and component life
- Provides significant reduction of oil consumption and disposal cost
- Decrease equipment down time
- Rugged design
- Will not void engine warranty
- Reducing operating cost and increase profits

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