

December 5, 1997

Heavy-Duty Lube Oil Filter Media

As you may be aware, Fleetguard has issued a service bulletin regarding BD103/BD103SS filter failures. This Fleetguard bulletin is very misleading and fails to address the facts surrounding BD103 filters which have been associated with some engine failures. For the benefit of our customers, we wish to set the record straight with the facts.

In the early summer of this year, we investigated BD103 filters which were returned to us after customers had experienced engine failures. These incidents were almost exclusively with Cummins M11 engines although the N14 may also have been involved. Autopsy of the filters indicated two predominant causes of filter damage - incorrect pre-filling of filter and coolant leaks into lube oil system.

Incorrect pre-filling has been addressed through education (Engineering Bulletin 97-6) and a design change to the BD103. The bypass filter element outlet grommet is being retooled to incorporate a one way flow orifice. This change will make pre-filling through the grommet impossible. The new outlet grommet will be in production after the first of the year.

Damage to the filter element due to coolant leaks can best be resolved by correcting the coolant leaks themselves. Coolant very quickly plugs filter media and significantly increases restriction and differential pressure. Very high differential pressures not relieved by the bypass valve can lead to media damage as we have witnessed with some BD103's as well as other manufacturers products. This type of damage will occur to all media types, cellulose or synthetic, as we have seen in both field and laboratory tests. Cellulose media tears or perforates. With synthetic media, the failure mode may not be quite as visible as the torn or perforated pleats that can be seen with cellulose media. However, channeling of the synthetic media yields the same end result of unfiltered oil bypassing the filter element. Something must give to relieve extremely high differential pressures if the bypass valve does not operate in a sufficient period of time. The filter media regardless of type should always be the weakest link.

While we have no ability to prevent or correct engine coolant leaks, we have taken steps to further strengthen the BD103 and the other primary heavy duty lube filters against coolant leak damage.

We have increased the pleat count in heavy duty products (B76, B95, B96, B99, BD103, B7600) to increase the overall element collapse strength. For example, the BD103 now has a collapse strength of 295 psi as compared to 226 psi for the LF3000. The BD103 collapse pressure is now nearly 3 times that of the bypass valve opening pressure: Fleetguard is 2.2.

The filters for other applications such as Caterpillar and Detroit Diesel have similar ratios of collapse performance to bypass opening pressures.

We have also removed the paper wrapper from the bypass element to improve the performance of the BD103. This change in addition to the pleat count addition, has raised both the efficiency and capacity of the BD103, to levels still greater than the LF3000. The BD103 now has a 3.7% efficiency advantage (93.4 vs. 89.7) and a 88% capacity advantage (83.7 grams vs. 44.8 grams) over the LF3000.

Fleetguard also makes claims about media pack movement and subtly states this as a type of element failure. This is not true. Baldwin filter elements are designed to assure that the ends of the filter media are fully embedded in the plastisol potting material. This design objective is accomplished by assuring that the centertube is not too long and thereby prevents the media ends from being sealed. It may be possible for the centertube to be attached at one end only. This is not a bad condition. The centertube provides structural support to the filter media when it becomes loaded with contaminant and differential pressure increases. Structural support is required in the radial direction and not axially as Fleetguard would imply. In service, the media is symmetrically loaded with even forces being applied around the element. The filter element and media have no ability to twist in service as Fleetguard is suggesting.

The final point of the Fleetguard claim is relative to no metal clips or loose clips used to secure the pleat ends. All Baldwin heavy duty products use metal clips to secure pleat ends. It is totally erroneous for Fleetguard to state that no metal clip has been used. As for loose clips, we know of no incidents where this has occurred. Metal clipping of pleat ends is a recognized and accepted manufacturing process used by a number of manufacturers, Fleetguard included.

Baldwin Filters continues to make every effort possible to provide our customers with the highest quality products and factual information which can be used to understand filtration system related issues. Our products and reputation have stood the test of time and we continue to build upon this reputation. We do not consider any Baldwin products currently in the field to be defective or unsatisfactory for use. As always, our products are fully warranted against failure directly attributed to their performance. The ongoing improvements that we have recently made to these heavy duty lube oil filters only continues to enhance performance and standing against competitors offerings.

**If you have further questions,
please contact our
Service Engineering Team at (800) 822-5394.**