Hitachi Excavator Cylinder failures contained by MAG-SHIELDS®

The Problem

Contamination from cylinder failures returns to the reservoir and recirculates through the remainder of the system. Much of the contamination passes through the existing reservoir screen and into the various pumps and control valves. Larger particles collect on the screen, increasing pump cavitation and pump damage. This results in system wide failures that are costly and time consuming to repair and are most frequently accompanied by follow-on failures due to limitations of flushing techniques used as part of the repair process.

The Solution

Surrounding the existing reservoir suction screen with Bay6 Solutions' Mag-Shield filters captured and held contamination, preventing it from reaching the pump suction inlets. This also prevented contamination from collecting on the reservoir screen thus reducing the damaging consequences of cavitation.

" Attached, is a photo of one of the Mag-Shields after a cylinder failure on an EX850 excavator. Mag-Shields captured material that would have spread throughout the machine. NACG saved a lot of money as we did not have to disassemble the hydraulic system for major cleaning. The actual savings estimate is greater than $70,000 and could be over $100,000. These estimates are compared to previous cylinder failures we have experienced with EX850s that did not have Mag-Shields, which resulted in contaminated hydraulic systems. "

Michael Hynes
Superintendent of Reliability
North American Construction Group

The Results

These results represent Mag-Shield performance in twenty excavators operating at several of this customer's mine sites over a period of 5 years. MAG-SHIELDs® were installed in the hydraulic systems of these excavators. Following installations, repair costs and failure rates improved dramatically, and follow-on failures were eliminated. Savings were also realized in the reduction of transportation costs related to moving the machines to and from site. The result: less disruption for operations, planning and maintenance; improved availability and hundreds of thousands of dollars saved.

Return on investment was less than one year.