



CASE STUDY

CUSTOMER

MAINLAND SAND & GRAVEL

LOCATION

ABBOTSFORD, BC CANADA / 2010-2014

EQUIPMENT

HAUL TRUCK

APPLICATION

GEARBOX

PROVEN
RESULTS



CONTAMINATION
ISO IMPROVED
FROM 23/11
TO 21/9

CHALLENGE

The planetary gearboxes in the wheel motors of their CAT 787 Haul Trucks were failing prematurely due to excessive contamination ISO 23/21 (the majority Calcium dust) which was entering into the system through the poor quality air breathers. Traditional kidney loop filtration was unable to remove these particles as they were under 10 microns to sub-micron in size.



SOLUTION

Wes Lindemere of AIT in Grande Prairie, suggested the installation of two OEI two magnetic filter scrubbers as the primary filter on the kidney loop before the traditional Donaldson filter as well as an OEI magnetic y-strainer as a final filter before returning the oil to the differential, with a target of cleaning the oil to a lower than ISO clean oil standard(16/13).



RESULTS

The magnetic filters removed a large amount of both ferrous (10.67%) and non-ferrous (89.33%- with the majority being Calcium) contamination over a six hour loop time resulting in a decrease in ISO to 21/9, see a photo on the right and the analysis (Page 2). The majority of this was below ten microns to sub-micron in size and would have travelled right through the traditional filter element. By removing this contamination the life of the oil as well as the engine components are extended, increasing uptime. The scrubbers are still in service and working effectively after 4 years.
(the non-ferrous contamination was trapped due to electromagnetic static charge)



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Lubricant Inspection Record



METRO TECH SYSTEMS LTD.
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Client One Eye Industries Inc
 Location FILTER CART MAGNETS -DIFF
 ISO 9001 Registered Firm
 Unit Number
 Component
 Make/Model
 Serial #

Lab Number:	SD2850	New Oil
Sample Date:	Apr 30/12	
Unit:		
Oil:		
Oil Type:		
METALS (D5185): Milligrams per Kilogram (PPM) Highlighted Test Results Indicate Abnormal Concentrations		
Tin	2	
Lead	0	
Copper	17	
Aluminum	6	
Silicon	63	
Iron	462	
Chromium	4	
Silver	0	
Zinc	1500	
Magnesium	17	
Nickel	3	
Barium	0	
Sodium	4	
Calcium	2000+	
Vanadium	0	
Phosphorus	1150	
Molybdenum	1	
Boron	5	
Manganese	4	
PHYSICAL PROPERTIES		
Viscosity (D445) @ 40°C		
Viscosity (D445) @ 100°C	18.32	
Water (D4007) (% v/v)	0	
Solids (D4007) (% v/v)	**	
Glycol		
Fuel Dilution		
OTHER PROPERTIES		
Acid No. (D664)		
Base No. (D2896)		
Base No. (D4739)		
Oxidation		
Nitro Compounds		
Organic Nitrates		
Particle Count (ISO 4406)		
Oil Changed?		
COMMENTS RATING SYSTEM: A is LOW B is LOW to MODERATE C is MODERATE D is HIGH E is SEVERE SD2850 - Tests indicate need to CHANGE OIL. Dust/Dirt (B). Low alloy steel wear (C). Please verify oil type. ** Suspect SAE 50 oil. See filter sediment report also **		
Laboratory Telephone (403) 295-8803 Results were verified on May 01/12 by F Saïad Shirabad 109150_01		

**PRODUCT
RECOMMENDATION
MAGNETIC
FILTER SCRUBBER
Y-STRAINER**

