Caterpillar 789 Haul Truck Final Drive : Camberwell Coal

Camberwell Coal has done a lot of evaluation on Finaldrives and is continually evaluating different ways of introducing filtration to its Finaldrives in its CAT 789 haul trucks.

This time the unit chosen was a FM1640 fitted with a 20 litre per minute pump. The finaldrive housings have been drilled to allow oil to flow from the hubs to the centre of the finaldrive, pipes were fitted in a recent overhaul which allowed the oil to be sucked from the right hand side hub and returned to the left hand side hub, quick release couplings were fitted to the inspection plates that enable ease in hooking up the kidney unit. (As in picture)

Results Indicate the ISO was reduced from a 23/21/16 to 19/16/12, a 95% reduction in particulate contamination. Silicon was reduced from 33 ppm to 14 ppm, a reduction of 53%, Iron was reduced from 36 ppm to 5 ppm, a reduction of 86% and PQ 90 Index was reduced from 87 to 4, a 95% reduction.

The visual wear contamination photos attached tell a story in themselves. Camberwell are implementing this style of filtration unit to their finaldrives' maintenance program.

FILTER TECHNOLOGY

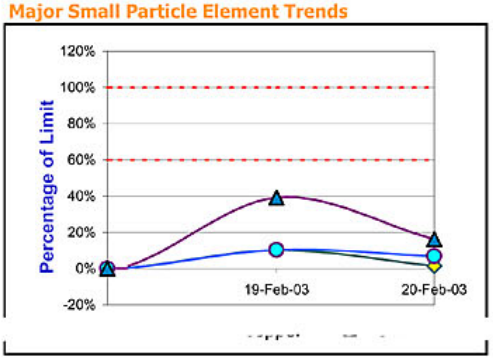
Oil Test

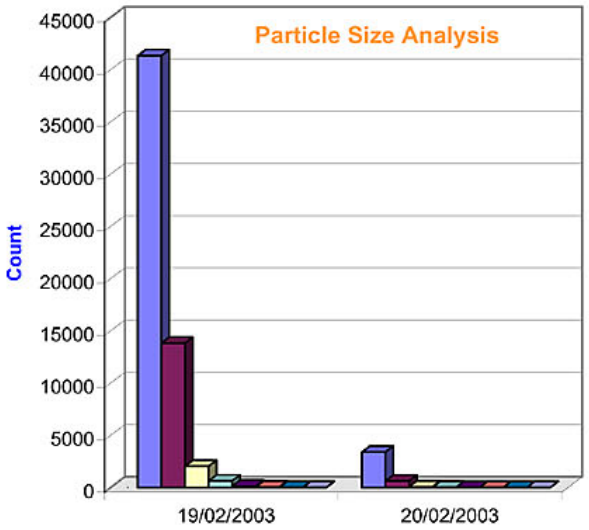
Client	Filter Technology Australia Pty Ltd
Attention To:	PHILLIP MARHEINE - 71 Racecourse Road, Rutherford
Machine:	313 Camberwell Coal unit 313
Sample Location:	Differential
Oil Type:	CALTEX TORQUE FLUID 464

This Report No:	189839	
Date	19-Feb-03	20-Feb-03
Report No.	189,838	189,839
Meter Reading	0hrs	0hrs
Oil Hrs	-	-
Oil Changed	No	No
Particle Analysis		
> 4 um Count	41351	3382
> 6 um Count	13823	610
> 10 um Count	2035	64
> 14 um Count	629	21
> 21 um Count	124	4
> 25 um Count	45	2
> 38 um Count	7	1
> 70 um Count	2	0
Cleanliness Analysis		
ISO-4406 4\ 6\ 14µm	23\21\16	19\16\12

Sample Date	19-Feb-03	20-Feb-03
Analysis Report No.	189,838	189,839
Service Meter Reading	0hrs	0hrs
Electric SMR	0hrs	0hrs
Oil Hrs	-	-
Oil Changed?	No	No
Wear Metals	ppm	ppm
lead	2	1
iron	36	5
aluminium	2	1
copper	6	4
chromium	0	0
tin	0	0
nickel	0	0
silver	0	0
titanium	0	0
Contaminants	ppm	ppm
silicon	33	14
sodium	18	8
vanadium	0	0
Oil Additives	ppm	ppm
magnesium	24	23
zinc	1399	1392
molybdenum	0	0.2
calcium	2879	2877
phosphorous	1055	1052
boron	1	1
barium	1	0
Physical Tests		
TBN	0	0
TAN	0.00	0.00
fuel dilution %	0	0
water %	0	0
viscosity index	95	95
visc @ 100oC - Cst	22.46	22.22
visc @ 40oC - Cst	290	286
Particle Analysis		
particle count in 1ml	41351	3382
ISO-4406 4\ 6\ 14µm	23\21\16	19\16\12
PQ90 Fe - mg \ ltr	87	4

Major Small Particle Element Trends





Visual Wear & Contamination trend