



CLEAN OIL
BRIGHT IDEAS

Hydraulic Oil Fishing Vessel - Hydraulic System

CJC™ Application Study

Application Study
written by:

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2000

CUSTOMER

Vessel: E.443, M/S Britta Brock
Ship Owner: Mr. Kaj Brock, Esbjerg, Denmark

THE SYSTEM

Traditional hydraulic system
System volume:
500 litres of STATOIL, Hydraway HV 46 oil

THE SOLUTION

CJC™ Fine Filter HDU 15/25 PM, with pump
flow rate = 120 ltr/hour and containing one
CJC™ Fine Filter Insert BG 15/25 (3 µm abs.)

THE TEST

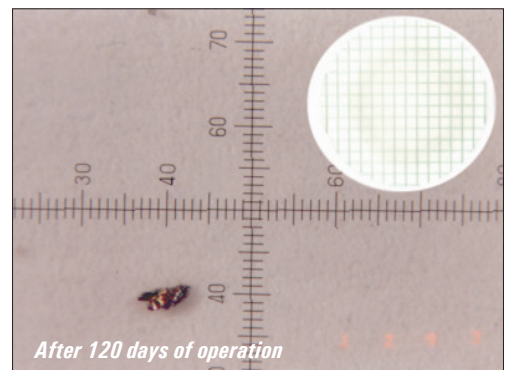
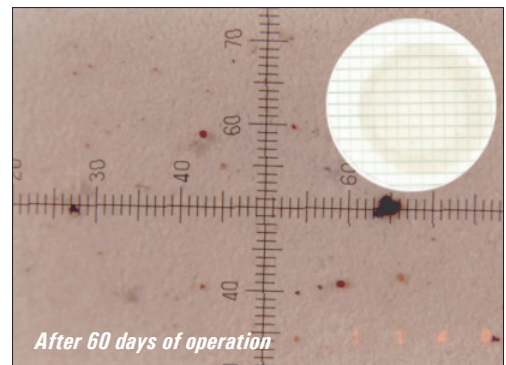
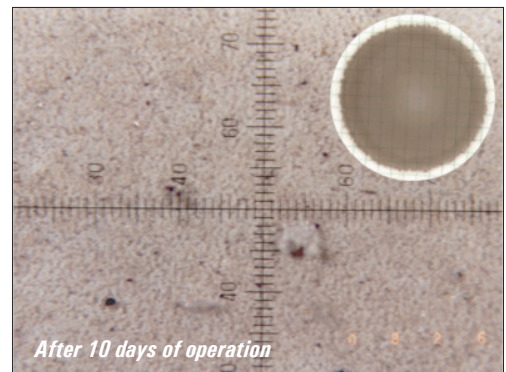
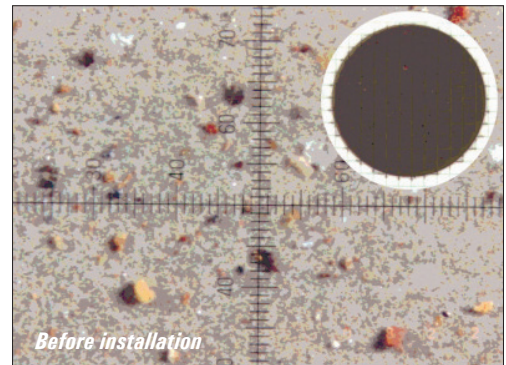
After having experienced several breakdowns in the hydraulic system, skipper Kaj Brock decided to optimise the oil filtration system. An oil analysis showed contamination 6 times higher than the acceptable level. The oil was categorised as "extremely contaminated with metal, sand and plastic particles, as well as heavy formation of oxidation products and water". Hence after the off-line filter was installed.

THE RESULT

Samples taken after 10, 60 and 120 days all showed dramatic reductions in contamination levels. Not only was it possible to clean the oil but also the oxidation deposits on valves, pipes and tank walls were removed. Even so the skipper only had to change the first insert after 160 days. The life time of the second insert is estimated at 12 months.

THE EFFECT

The achieved contamination level is well below the guidelines for hydraulic systems with proportional valves of ISO 17/15/12 recommended by, amongst others, the Danish Technological Institute. A survey on 700 hydraulic systems demonstrated that effective off-line filtration may prevent 66% of all breakdowns and reduce maintenance cost by up to 50% on oil systems.





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LIFE EXTENSION METHOD (LEM) - HYDRAULIC SYSTEMS

Current Machine Cleanliness (ISO)	Life Extension Factor (LEF)					
	2	3	4	5	6	7
26/24/21	23/21/18	22/20/17	21/19/16	21/19/15	20/18/14	19/17/14
25/23/20	22/20/17	21/19/16	20/18/15	19/17/14	19/17/13	18/16/13
24/22/19	21/19/16	20/18/15	19/17/14	18/16/13	18/16/12	17/15/12
23/21/18	20/18/15	19/17/14	18/16/13	17/15/12	17/15/11	16/14/11
22/20/17	19/17/14	18/16/13	17/15/12	16/14/11	15/13/11	15/13/10
21/19/16	18/16/13	17/15/12	16/14/11	15/13/10	15/13/9	14/12/9
20/18/15	17/15/12	16/14/11	15/13/10	14/12/9	14/12/8	13/11/8
19/17/14	16/14/11	15/13/10	14/12/9	14/12/8	13/11/8	

Source: Diagnostics, Inc.

The reductions achieved on M/S Britta Brock will extend the life time of the hydraulic equipment by a theoretical factor of 4 and improve oil life time accordingly.

ANALYSIS REPORTS

Date	> 2 µm	> 5 µm	> 15 µm	ISO 4406	Water Content
05.07.99	2,187,320	365,560	66,420	19/17	281.5 ppm
15.07.99	902,356	121,853	7,835	17/13	265.8 ppm
27.09.99	115,440	54,641	9,235	16/14	153.7 ppm
19.11.99	29,501	8,408	992	14/10	101.3 ppm

80% of all breakdown are caused by contamination in the oil.

With a CJC filter these are avoided!



The filter used on M/S Britta Brock is the HDU 15/25

The CJC Product line includes Fine Filters and Filter Separators for particle, water and resin removal from:

- Gas Oil
- Lube Oil
- Hydraulic Oil
- Gear Oil

Remember, there is a CJC Filter for all oil systems on board your vessel.