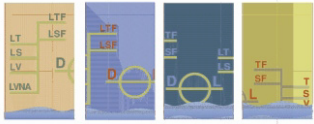




C.G. JENSEN

OIL FILTRATION SYSTEMS



MARINE

Application Study written by
Kim Kjær C.C. Jensen (DK)

CJC™ Application Study

Hydraulic System - Fishing Vessel

CUSTOMER

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

THE SYSTEM

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

THE SOLUTION

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

THE TEST

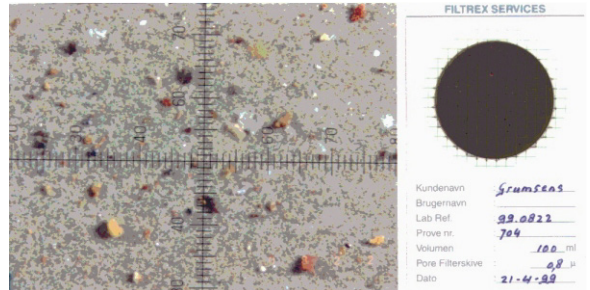
After having experienced several breakdowns in the hydraulic system, skipper Kaj Brock decided to optimize the oil filtration system. An oil analysis showed contamination 6 times higher than the acceptable level. The oil was categorised as “extremely contaminated with metal, sand and plastic particles,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

THE RESULT

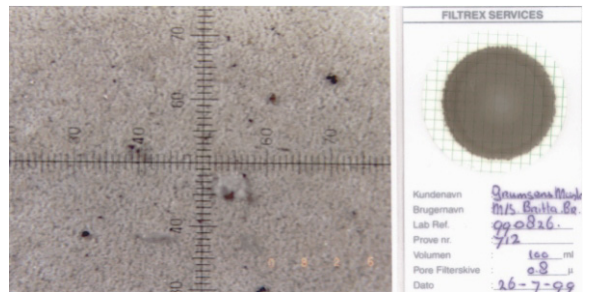
Samples were taken after 10, 60 and 120 days all showing dramatic reductions in contamination levels. Not only was it possible to clean the oil but also the oxidation deposits on valves, pipes and tank walls were removed. Even so the skipper only had to change the first element after 160 days. The life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

THE EFFECT

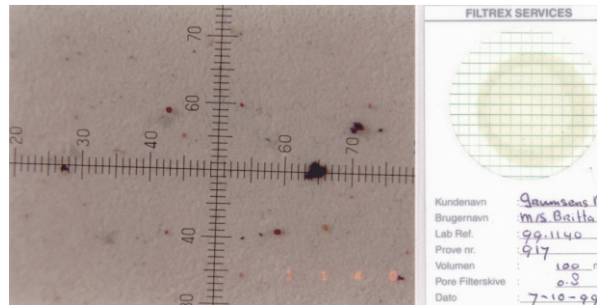
The achieved contamination level is well below the guidelines for proportional hydraulic systems of ISO 17/15/12 recommended by, amongst others, the Danish Technological Institute. A survey on 700 hydraulic systems demonstrated that effective off-line filtration may prevent 66% of all breakdowns and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



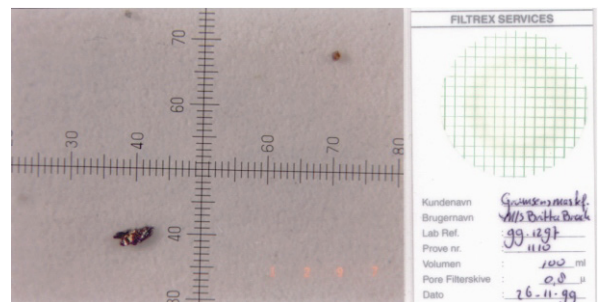
Before installation



After 10 days of operation



After 60 days of operation



After 120 days of operation



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Hydraulic System - Fishing Vessel

HDU 15/25 PM

LIFE EXTENSION METHOD (LEM) - HYDRAULIC SYSTEMS

Life Extension Factor (LEF)

	2	3	4	5	6	7
24/21	21/18	20/17	19/16	19/15	18/14	17/14
23/20	20/17	19/16	18/15	17/14	17/13	16/13
22/19	19/16	18/15	17/14	16/13	16/12	15/12
21/18	18/15	17/14	16/13	15/12	15/11	14/11
20/17	17/14	16/13	15/12	14/11	13/11	13/10
19/16	16/13	15/12	14/11	13/10	13/9	12/9
18/15	15/12	14/11	13/10	12/9	12/8	11/8
17/14	14/11	13/10	12/9	12/8	11/8	

Current Machine Cleanliness (ISO)

Source: Diagnostics, Inc.



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

The reductions achieved on M/S Britta Brock will extend the life time of the Hydraulic equipment by a factor of 5 and improve oil life time accordingly.

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

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

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

ANALYSIS REPORTS

Fecha	> 2 μm	>5 μm	>15 μm	ISO 4406	Cont. Agua
5-7-99	2,187,320	365,560	66,420	19/17*	281,5 ppm
15-7-99	902,356	121,853	7,835	17/13	265,8 ppm
27-9-99	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.



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