ULSTEIN

ULSTEIN BERGEN AS
SERVICE DIVISION

SERVICE LETTER

Service letter no. 961106.1 **Engine type: BRx-x, special engines**

Distribution : BR-engines no : 9082, 9092 - 9093

Gear Wheel, Cam Shaft Drive

On B-type engines listed in the head line, cam shaft drive gear wheels from one particular supplier have been fitted. Recently occasional cracking of tooth flanks has been observed on wheels fitted to the cam shafts. The cracks have probably been induced during the production of these gear wheels, and they become quite obvious after a short time of operation.

Crank shaft gear wheels and idler gears do not seem to have the same flaw.

So far no further damages to the cam shaft drive train, due to the observed cracks, have been reported. We request that all gear wheels of the cam shaft drive train on above mentioned engines be inspected, preferably by magnifying glass, and the findings be reported to us at:

Ulstein Bergen AS
Service Department
Att. B. Thorbjornsen
P.O. Box 924
N-5002 Bergen/Norway
telefax: +47 55 19 04 05

As soon as we have gained an overview of the extent of the damages, we shall revert with an action plan for their remedy.

Tannhjul for kamakseldrift

På B-motorer nevnt i overskriften er det anvendt tannhjul til drift av kamaksel fra en bestemt leverandør. På hjulet som sitter på kamakselen er det i nyere tid oppdaget noen tilfeller av rissdannelse i tannflankene. Rissene er sannsynligvis oppstått i tannhjulets produksjonsprosess og viser seg klart etter kort tids drift.

Veivakselhjul og mellomhjul ser ikke ut til å ha den samme feilen.

Det er så langt ikke rapportert videre skader på kamakseldrevene som følge av den observerte rissdannelse. Vi ber om at alle tannhjul i kamakseldriften på ovennevnte motorer inspiseres, helst med lupe, og at tilbakemelding om inspeksjonsresultat sendes til:

Ulstein Bergen AS
Service Department,
Att.: B. Thorbjornsen
Postboks 924
N-5002 Bergen
telefax: +47 55 19 04 05

Når vi har vunnet oversikt over eventuelt skadeomfang, vil vi komme tilbake med tiltaks-plan.

ULSTEIN BERGEN AS
P.O.Box 924, N-5002 Bergen, Norway
Tel. + 47 55 19 90 00. Fax. + 47 55 19 04 05. Tlx. 42735 bmvh n
Enterprise number NO 934 454 510 VAT

SERVICE LETTER

Service letter no. 961025.2 **Engine type: BRxx-xxx and Kxxx-xxx**

High lubricating oil consumption and comburstion gas blow-by rate are mainly caused by the deterioration of the honing patterns of the cylinder liner. (bore polishing). Therefore the liner surface was no longer cabable to retain a sufficient lubricating oil film, thus impeding piston ring performance. Because of its hardness, the carbon deposit on the upper piston land was the main cause for the detoriation of the honing pattern.

Høye smøreoljeforbruk og gasslekkasjer er hovedsaklig begrunnet med den raske ødeleggelsen av honemønsteret i sylinderforingen (polering av sylinderveggene) med det til følge at overflaten i sylinderforingen ikke lengre var i stand til å holde på smøreoljefilmen. Dermed kunne stempelringene ikke lengre fungere som tilsiktet. Det var hovedsaklig kokslaget på det øverste landet på stempelet som p.g.a. sin hardhet har ført til ødeleggelse av honemønsteret.

Fitting an anti-polishing ring as indicated on the above illustration, the piston diameter above the upper piston ring can be reduced by approx. 1 - 1.5 mm, so that the carbon deposits no longer come into contact with the liner surface. Furthermore, the anti-polishing ring limits the thickness to which the carbon deposits can develope before being scraped off by the lower edge of the anti-polishing ring.

Ved å sette inn en koksring som vist på tegningen over kan stempeldiameteren over den første stempelringen reduseres med ca. 1 - 1.5 mm lik at koksen som danner seg ikke kan komme i berøring med sylinderløpeflaten. Dessuten sørger koksringen for at kokssjiktet ikke kan vokse nevneverdig i tykkelse før det blir skrapt vekk av den nederste kanten av koksringen.

The anti-polshing ring is fitted with a slight interference fit into its recess in the cylinder liner. An extracting tool is supplied. A special fitting tool for entering the piston into the liner is also supplied.

Koksringen sitter i sylinderforingen med en lett presspasning og det medleveres et enkelt uttrekksverktøy. Det medleveres dessuten et spesielt verktøy for innsetting av stempelet.

See also "Cylinder Head".

Dismantling.

Before removing the cylinder head, the cooling water is drained and the top cover is removed.

All pipe couplings are disconnected from the cylinder head. The high pressure fuel oil pipe is disconnected and removed.

Remove the screws (23) in the cooling water bend. Also remove the screws (10) in the air bend and in the cooled exhaust housing. The cooled exhaust housing is connected to the exhaust pipes and is resting on the support (27) when the cover is dismantled. The exhaust gasket (25) is connected to the cylinder head with the screws (26).

The nuts (21) on the cylinder head bolts (19) are removed. See "Use of hydraulic power tool for tensioning of cylinder head bolts".

The lifting tool is fitted and the cylinder head is removed. See "Special tools", chapter 1.
Make sure that the drain pipes (13) are kept in position when removing the cylinder head.

Installing.

Before installing the cylinder head, the sealing surfaces between the head and the cylinder liner must be cleaned. The soft steel top gasket (1) with copper overlay normally has to be renewed.

All surfaces within the enclosure must be thorougly cleaned, because any dirt or other pollution may follow the lubr.oil to the oil sump.

The O-rings (2) and (24) do not stand mineral oil. To prevent the O-rings from swelling, the contact surfaces must be cleaned free of oil and grease before mounting. Apply silicon grease, type DOW CORNING-MOLYCOTE 55 M, to the O-rings before fitting.

Other gaskets and sealing rings must be checked and replaced if necessary.

If the top gasket (1) and/or the gasket between the cylinder liner and the cylinder block have/has been renewed, the clearance between piston top and cylinder head must be checked prior to starting. After test run the tightening of the cylinder head bolts should be checked. See "Clearances" and "Manufacture Data", chapter 0.

The push rods (12) and the drain pipes are fitted before the cylinder head is installed. Make sure that the guide slot in the cylinder head fits with the guide pin (4).

1. Gasket
2. O-ring
3. Guide block
4. Cylindrical guidepin
5. Screw
6. Guide
7. Screw
8. Spring washer
9. Washer
10. Screw
11. O-ring
12. Air bend
13. Drain pipe
14. Air bend
15. Screw
16. Washer
17. O-ring
18. Protecting enclosure
19. Cylinder head bolt
20. O-ring
21. Nut
22. Spring washer
23. Screw
24. O-ring
25. Gasket
26. Screw
27. Support