

COPY

LLOYD'S REGISTER OF SHIPPING

71, Fenchurch Street, London, E.C.3

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Telex No.: 24305

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Enclosure.

3rd May, 1960.

ENG. Dear Sirs,

M.V. "NORSTRAUM"
Messrs. Wichmann Motorfabrikk A/L,
Reconditioned Main Engine (Type 4 AB).

We are in receipt of your letter of the 16th April, with enclosures, in further reference to the reconditioned main engine which is to be supplied for the above vessel.

With engines for main propelling purposes having particulars as stated below, the following sizes of shafting will be approved subject to the conditions set forth in our letter of the 13th April being complied with where applicable.

Crank Pins & Journals.....	170 mm. dia.
Thrust.....	123 mm. dia.
Screw.....	120 mm. dia.

Particulars of Engines.

Engine Type.....	2 S.C.S.A.
No. of Cylinders.....	4
Dia. of Cylinders.....	320 mm.
Stroke.....	320 mm.
Span of Bearings.....	384 mm.
Revs. per Min.....	350
Max. Press. in Cylinders.....	25 Kg/cm. ²
M.I.P.....	3.4 Kg/cm. ²
B.H.P.....	240
Weight of Flywheel.....	625 kg.
Dia. of Flywheel.....	680 mm.
Weight of Balance Weights.....	384 kg.
Radius of gyration of Balance Weights	204 mm.
Dia. of Propeller.....	1450 mm.
Screwshaft <u>Without</u> Continuous Liner, but <u>With</u> Approved Oil Gland.	

Cont.....

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The details of crank and straight shafting, shown on the plans, will also be approved but the method by which the propeller thrust is transmitted to the hull is not clear. We shall be glad if you will kindly clarify this point and submit a plan of the S.K.F. type thrust.

Please confirm whether an approved oil gland will be fitted at the after end of the sterntube.

With regard to the shear area of the propeller key which, it is noted, is somewhat less than normal practice, it is concluded that the ultimate tensile strength of the key will be not less than 50 kg/mm².

The torsional vibration characteristics of the shafting installation of the main machinery have been examined in conjunction with the Engine Builders' calculations and will be approved for a service speed of 350 R.P.M., provided the engine governor be set to prevent the engine speed rising above 375 R.P.M. and a notice board to this effect be fitted at the control station.

The particulars of the propeller, relevant to the torsional vibration characteristics, are noted and it is observed from the propeller plan Pr. 107 that this propeller was designed to absorb 200 B.H.P. at 375 R.P.M.. It is thought well to mention that the torsional vibration characteristics are not acceptable for a service speed of higher than 350 R.P.M.

In accordance with the usual practice, the Owners should be advised of the condition of approval of the torsional vibration characteristics, and we shall be glad if you will arrange accordingly. Please inform us when this has been done.

A reference to the foregoing speed restriction should be included in your Interim Certificate.

One set of the Firm's calculation sheets and plans is returned herewith.

Yours faithfully,

The Surveyors,
BERGEN.

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Lloyd's Register
Foundation