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Rpt. 4c

Date of writing report 13.5.61. Received London Port NOTTINGHAM. No. FE.1783. Survey held at Lincoln. No. of visits 3. First date 11.5.60. Last date 20.3.61.

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship M.V. "NORWID" Owners Polish Ocean Liners. Ship Built at Grand Quevilly Ch. Reunis Loire-Normandie when 1961 Yard No. 323. Auxiliary Engines 5V60BZ made at Lincoln by Ruston & Hornsby Ltd. Paris when Eng. Nos. 446398. Total No. of sets and description (including type name) One - Auxiliary - 5V60BZ.

INTERNAL COMBUSTION RECIPROCATING ENGINES. No. of cylinders per engine 5. Dia. of cylinders 8" Stroke 10 3/4". 2 or 4 stroke cycle 4. Maximum approved BHP 255 at 600 RPM. Corresponding MIP 11.6 lbs. Maximum pressure 1050 lb/sq. in. Fuel Diesel Oil. Are cylinders arranged in Vee or other special formation? No. If so, No. of crankshafts per engine None. Is engine of opposed piston type? No. No. and type of mechanically driven scavenge pumps or blowers per engine None. No. of exhaust gas driven blowers or superchargers per engine One. Is welded construction used for: Bedplate? No. Entablature? No. Total internal volume of crankcase (if 20 cu. ft. or over) 40.5 c./ft. No. and total area of crankcase explosion relief devices 10 - 238 sq. ins. Are flame guards or traps fitted? Yes. Cooling medium for: Cylinders Water. Pistons Air. No. of attached pumps: F.W. cooling One. S.W. cooling - Lubricating oil One. How is engine started? Comp. Air.

SHAFTING. Is a damper or detuner fitted? No. No. of main bearings 7. Are bearings of ball or roller type? No. Distance between inner edges of bearings in way of cranks 9.3/16". Crankshaft: Built, semi-built, solid. Material of crankshaft Steel. Approved minimum tensile strength - Dia. of pins 1 3/4". Journals 6". Breadth of webs at mid throw 8". Axial thickness 2 1/2". If shrunk, radial thickness around eyeholes - Dia. of flywheel 3'-9". Weight 21 cwts. Are balance weights fitted? No. Total weight - Rad. of gyration - Dia. of flywheel shaft 6". Has each engine been tested in shop? Yes. How long at full power? - Was it tested with driven machinery attached? Yes. Was the governing tested and found satisfactory? Yes. Date of approval of torsional vibration characteristics (for engines of 150 BHP and over) 20.1.61. Date of approval of shafting 20.12.58. Identification marks on shafting LL.12870. RG.9408. Particulars of driven machinery 17.2 kW. AC. Thrige Alternator No. 908487.

Port and No. of Certificate for Starting Air Receivers (One) Marked A 5728 NOTTINGHAM C 33596

AUXILIARY GAS TURBINES. BHP per set At RPM of output shaft. Open or closed cycle? Arrangement of turbines. HP drives at RPM HP gas inlet temp. pressure. (A small diagram should be attached showing gas cycle) IP " " " " " " LP " " " " " " " " No. of air compressors per set Centrifugal or axial flow type? Material of turbine blades. Material of compressor blades No. of air coolers per set No. of heat exchangers per set How are turbines started? Are the turbines operated in conjunction with free piston gas generators? Total No. of free piston gas generators Dia. of working pistons Dia. of compressor pistons No. of double strokes per minute at full power Gas delivery pressure Gas delivery temperature. Have the turbines and attached equipment been tested in shop? How long at full power? Were they tested with driven machinery attached? Particulars of gearing. Date of approval of plans Identification marks Particulars of driven machinery.

ELECTRIC GENERATORS. Port and No. of Certificate for generators of 100 Kw. and over Copenhagen No. 908487. For generators under 100 Kw., has Makers' Certificate been obtained? Are Certificates attached? No.

RUSTON & HORNSBY LTD LINCOLN. SIGNED [Signature] Date 18/5/61. MARINE ENGINEERING DEPT. Manufacturer

The foregoing description is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable).

Is this machinery duplicate of a previous case? No. If so, which?

GENERAL REMARKS. State if the machinery has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible. This Engine has been built under Special Survey in accordance with the Approved Plans and the Regulations of the Society, materials and workmanship being good. On completion the engine was tried in the Shops under working conditions driving against brake loading; running at varying loads and speeds with satisfactory results. The machinery has been forwarded for installation in the vessel. Explosion relief devices and Flame Deflectors fitted.

Survey Fee £25.12/6d. Expenses incl. Date when a/c rendered

[Signature] Engineer Surveyor to Lloyd's Register

Declaration to be signed by Surveyor at fitting-out Port:— The above described machinery has been fitted on board the M.V. "NORWID" at Grand Quevilly in a proper manner and found satisfactory when tested on the (date) 24.1.1961 under full working conditions. Rouen

[Signature] Engineer Surveyor to Lloyd's Register

486 K [Signature] 19/6/61

