

Rpt. 4c

-6 DEC. 1960

Date of writing report 20.10.60 Received London Port Helsingfors No. 7564  
Survey held at Vasa No. of visits 28 First date 16.12.59 Last date 20.4.60

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship Icebreaker "LENINGRAD" Owners (Or Consignees) Wartsila-koncernen Ab, Sandvikens Skeppsdocka  
Ship Built at Helsingfors by Wartsila-koncernen Ab, Sandvikens Skeppsdocka when Yard No. 366  
Auxiliary Engines or Gas Turbines made at Vasa by Vasa Mekaniska Verkstad when 1960 Eng. Nos. 196  
Total No. of sets and description (including type name) 6 sets of Wartsila-Polar K 58 E

INTERNAL COMBUSTION RECIPROCATING ENGINES. No. of cylinders per engine 8 Dia. of cylinders 180 mm Stroke 300 mm  
2 or 4 stroke cycle 2 Maximum approved BHP 412 at 600 RPM Corresponding MIP 6.59 Maximum pressure 65 kg/cm<sup>2</sup>  
Fuel diesel oil Are cylinders arranged in Vee or other special formation? no If so, No. of crankshafts per engine - Is engine of opposed piston type? no No. and type of mechanically driven scavenge pumps or blowers per engine one turbo blower No. of exhaust gas driven blowers or superchargers per engine - Is welded construction used for: Bedplate? no Entablature? no Total internal volume of crankcase (if 20 cu. ft. or over) 1.2 m<sup>3</sup> No. and total area of crankcase explosion relief devices 3, 600 cm<sup>2</sup> Are flame guards or traps fitted? no Cooling medium for: Cylinders fresh water  
Pistons lubr.oil No. of attached pumps: F.W. cooling none S.W. cooling none Lubricating oil one How is engine started? by air.

SHAFTING. Is a damper or detuner fitted? no No. of main bearings 10 Are bearings of ball or roller type? no Distance between inner edges of bearings in way of cranks 222 mm Crankshaft: ~~solid~~ solid. Material of crankshaft SM steel Approved minimum tensile strength 52 kg/mm<sup>2</sup> Dia. of pins 120 mm Journals 125 mm Breadth of webs at mid throw 280 mm Axial thickness 56 mm If shrunk, radial thickness around eyeholes - Dia. of flywheel 900 mm Weight 458 kg Are balance weights fitted? no Total weight - Rad. of gyration - Dia. of flywheel shaft 125 mm  
Has each engine been tested in shop? yes How long at full power? 12 hours 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) 19.6.58  
Date of approval of shafting 25.9.58 Identification marks on shafting Lloyds KLN AS 777 27.4.59  
Particulars of driven machinery Gen. typ Siemens F 354 L-10 D

367 N.  
28-1-57  
G.P.  
19.12.60

Port and No. of Certificate for Starting Air Receivers

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 at IP LP 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  
For generators under 100 Kw., has Makers' Certificate been obtained? Are Certificates attached?

The foregoing description is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable)  
Wartsila-koncernen A/S  
WASA MEK. VERKSTAD  
R. Öberg  
Manufacturer

Is this machinery duplicate of a previous case? 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 Diesel Engine has been constructed under Special Survey in accordance with the Rules, approved plans and Secretary's letters. Quality of materials and workmanship found good.

Survey Fee Fmk. 70.000:-  
Expenses -  
Date when a/c rendered 19.5.60  
A. Weber. 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 "Leningrad" at Helsingfors in a proper manner and found satisfactory when tested on the (date) 29.10.61 under full working conditions.

A. Weber. Engineer Surveyor to Lloyd's Register