

Rpt. 4c

Date of writing report 20.10.60 Received London _____ Port Helsingfors No. 7565
Survey held at Vasa No. of visits 28 First date 13.3.59 Last date 21.4.60

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship Icebreaker "LENINGRAD" Owners _____
Ship Built at Helsingfors by Wartsila-koncernen Ab, Sandvikens Skeppsdoeka when _____ Yard No. 366
Auxiliary Engines or Gas Turbines made at Vasa by Wartsila-koncernen Ab, Wasa Mekanska Verkstad when 1960 Eng. Nos. 195
Total No. of sets and description (including type name) 6 sets 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/cm2
Fuel diesel oil Are cylinders arranged in Vee or other special formation? no
one turbo blower Is engine of opposed piston type? no
No. of exhaust gas driven blowers or superchargers per engine 1,2 m3 Is welded construction used for: Bedplate? no Entablature? no Total internal volume of crankcase (if 20 cu. ft. or over) 1,2 m3 No. and total area of crankcase explosion relief devices 3, 600 cm2 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: SM steel Material of crankshaft SM steel Approved minimum tensile strength 52 kg/mm2 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
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 772 AS 1.6.59
Particulars of driven machinery Gen. typ Siemens F3541-10D

367 N
28.11.57
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 _____
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 _____
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 (where applicable)
Wartsila-koncernen A/B
WASA MEK. VERKSTAD
K. 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" 2021
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