Rpt. 4c

Date of writing report 4.4.59 Received London ..... Port Helsingfors No. 7026 23 SEP 1960

Survey held at Vasa No. of visits 26 First date 4.8.58 Last date 19.2.59

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship Icebreaker "Moskva" Owners USSR (Or Consignees)
(Or Contract No. if name unknown).
Ship Built at Helsingfors by Wärtsilä-koncernen Ab, Sandvikens Skeppsdocka when ..... Yard No. 365
Auxiliary Engines or ~~Gas Turbines~~ made at Vasa by Wasa Mekaniska Verkstad when 1959 Eng. Nos. 189
Total No. of sets and description (including type name) K5BE

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^2
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? - Entablature? - Total internal volume of crankcase (if 20 cu. ft. or over) 1,2 m^3 No. and total area of crankcase explosion relief devices 3, 600 cm^2 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: ~~Built or semi-built~~ solid. Material of crankshaft SM Steel Approved minimum tensile strength 52 kg/mm^2 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? 8 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 GOT 1322 BJ 6.9.57.
Particulars of driven machinery Siemens A.C.Generator
285 KVA, 400 V, 555 A.
Port and No. of Certificate for Starting Air Receivers Not yet delivered.

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 " ..... at ..... " LP " " " ..... " .....
Material of turbine blades .....
No. of air compressors per set ..... Centrifugal or axial flow type? ..... No. of air coolers per set ..... No. of heat exchangers per set ..... How are
Material of compressor blades ..... 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 ..... Particulars of driven machinery .....
Date of approval of plans ..... Identification marks .....

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? .....

Wärtsilä-koncernen A/B
WASA MEK. VERKSTAD

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

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 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 " 1.110:-
Date when a/c rendered 23.2.59

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 icebreaker "MOSKVA" at Helsingfors in a proper manner and found satisfactory when tested on the (date) 11.5.60 under full working conditions.
Engineer Surveyor to Lloyd's Register

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