

Rpt. 4c

Date of writing report

Received London

23 NOV 1964

Port

Copenhagen

No. 21210

Survey held at

Holeby

No. of visits

6

First date

12.11.63

Last date

27.1.64

## FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship m.s. "BIJSK" of Odessa  
(Or Contract No. if name unknown).Owners U.S.S.R.  
(Or Consignees)

Ship Built at Nakskov

by A/S Nakskov Skibsværft

when Yard No. 172

Auxiliary Engines ~~XXXXXX~~ made at Holeby

by A/S Burmeister &amp; Wain

when 1964 Eng. Nos. 10266

Total No. of sets and description (including type name) One off B&amp;W-DM. 325MTBH-40. Turbocharged, Heavy oil, Trunk piston, solid injection

INTERNAL COMBUSTION RECIPROCATING ENGINES. No. of cylinders per engine 3 Dia. of cylinders 245 mm Stroke 400 mm

2 or 4 stroke cycle 4 Maximum approved BHP 255 at 500 RPM Corresponding MIP 9.8 kg/cm<sup>2</sup> Maximum pressure 60 kg/cm<sup>2</sup>

Fuel Heavy 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 None No. of exhaust gas driven blowers or superchargers per engine 1 Is welded construction

used for: Bedplate? No Entablature? No Total internal volume of crankcase (if 20 cu. ft. or over) 1.49 m<sup>3</sup> No. and total area ofcrankcase explosion relief devices 1 181 cm<sup>2</sup> Are flame guards or traps fitted? Yes Cooling medium for: Cylinders Fresh water

Pistons None No. of attached pumps: F.W. cooling None S.W. cooling None Lubricating oil 1 How is engine started? By air

SHAFTING. Is a damper or detuner fitted? No No. of main bearings 4 Are bearings of ball or roller type? No Distance between

inner edges of bearings in way of cranks 315 mm Crankshaft: ~~Butt~~ semi-built, ~~solid~~ Material of crankshaft SM steel Approvedminimum tensile strength 44 kg/mm<sup>2</sup> Dia. of pins 170 mm Journals 170 mm Breadth of webs at mid throw 292 mm Axialthickness 90 mm If shrunk, radial thickness around eyeholes 82.5 mm Dia. of flywheel 2900 kgm<sup>2</sup> Weight - Are balanceweights fitted? Yes Total ~~weight~~ 19.4 kgm<sup>2</sup> Rad. of gyration - Dia. of flywheel shaft -

Has each engine been tested in shop? Yes How long at full power? 6 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) 29.4.63

Date of approval of shafting 29.4.63 Identification marks on shafting Lloyd's Cpn No. 1906 KL 11.12.63

Particulars of driven machinery 1 AC generator No. 911836 made by Thomas B. Thrige, Odense 215 KVA 310 amps

400 volts. Generator WD<sup>2</sup> = 386 kgm<sup>2</sup>

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 " at " 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 Odense cert. dated 25/9-63

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)

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.

The heavy oil engine has been constructed under special survey in accordance with the Rules, approved plans and the Secretary's letters.

The material has been tested as required by the Rules and the workmanship is good.

Survey Fee kr. 540,-

Expenses kr. 82,-

Date when a/c rendered

20/2 1964

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.s. "BIJSK" (Nakskov 172) at A/S Nakskov Skibsværft in a proper manner and found satisfactory when tested on the (date) 24.9.64 under full working conditions.

Engineer Surveyor to Lloyd's Register

Foundation

011718-011724-0051



**Rpt. 4c**

Date of writing report..... Received London..... Port..... No.....  
 Survey held at..... No. of visits..... First date..... Last date.....

**FIRST ENTRY REPORT ON AUXILIARY STEAM TURBINE OR STEAM  
 RECIPROCATING ENGINES**

Name of Ship..... Owners.....  
 (Or Contract No. if name unknown) (Or Consignees)  
 Ship Built at..... by..... when..... Yard No. ....  
 Auxiliary turbines or engines made at..... by..... when..... Eng. Nos. ....  
 Total No. of sets and description.....

**STEAM TURBINES.** No. of turbines per set..... BHP per set..... Steam pressure..... Steam temperature.....  
 Type of turbines.....  
 Particulars of gearing.....  
 RPM of turbine shaft(s)..... PCD of pinion(s)..... PCD of wheel(s)..... Material of  
 pinion(s)..... Material of wheel rim(s)..... Has rotor been dynamically balanced?..... Diameter of rotor  
 shaft at bearings..... Does the set include a steam condenser?..... Is an emergency governor fitted?..... No. and purpose of  
 attached pumps..... Has the set been tested in the shop?..... If so, for how long at full  
 power?..... Was the governing tested and found satisfactory?..... Was the set tested with driven machinery attached?.....  
 Identification marks..... Particulars of driven machinery.....

**STEAM RECIPROCATING ENGINES.** BHP of each..... at..... RPM..... Steam pressure.....  
 Dia. of cylinders..... Stroke..... Dia. of crankshaft journals..... Pins..... Material of  
 crankshaft..... Is crankcase enclosed?..... If so, is the internal volume 20 cu. ft. or over?..... No. and total area of crankcase  
 explosion relief devices fitted?..... Are the bearings forced lubricated?..... No. and purpose of attached pumps.....  
 Is a Governor Fitted?..... 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.

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.

Survey Fee.....  
 Expenses.....  
 Date when a/c rendered.....  
 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.....  
 at..... in a proper manner and found satisfactory when tested on the (date)..... under full working  
 conditions.