30. AUG. 1962

Rpt. 4c

Date of writing report 26th March, 1962 Received London ..... Port KOBE No. FE-10186

Survey held at Innoshima, Japan No. of visits 32 First date 20th Sept., 1961 Last date 17th March, 1962

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship m.v. "OKHOTSK" *Owners (Or Consignees)* V/O "Sudoimport" Moscow, U.S.S.R.
(Or Contract No. if name unknown).
Ship Built at Sakurajima, Japan *by* Hitachi Shipbuilding & Eng., Co., Ltd. *when* 7,62 *Yard No.* 3923
Auxiliary Engines or Gas Turbines made at Innoshima, Japan *by* Hitachi Shipbuilding & Eng., Co., Ltd. *when* 3,62 *Eng. Nos* 5234, 5235 & 5236
Total No. of sets and description (including type name) 3, Hitachi B & W 625 - MTBH-40 type

INTERNAL COMBUSTION RECIPROCATING ENGINES. *No. of cylinders per engine* 6 *Dia. of cylinders* 245 mm *Stroke* 400 mm *2 or 4 stroke cycle* 4 *Maximum approved BHP* 510 *at* 500 *RPM Corresponding MIP* 9.9 kg/cm2 *Maximum pressure* 55 kg/cm2 *Fuel* Heavyoil *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)* 3.47 M3 *No. and total area of crankcase explosion relief devices* 2 x 181.5 cm2 *Are flame guards or traps fitted?* Yes *Cooling medium for: Cylinders* Fresh water *Pistons* - *No. of attached pumps: F.W. cooling* None *S.W. cooling* None *Lubricating oil* 1 *How is engine started?* Compressed 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* 315 mm *Crankshaft:* ~~Built~~, *semi-built,* ~~solid~~. *Material of crankshaft* Web & Pin - Cast steel Journal - Forged steel *Approved minimum tensile strength* 44 kg/cm2 *Dia. of pins* 170 mm *Journals* 170 mm *Breadth of webs at mid throw* 291 mm *Axial thickness* 90 mm *If shrunk, radial thickness around eyeholes* 82.5 mm *Dia. of flywheel* 1,350 mm *Weight* 2,150 kg. *Are balance weights fitted?* Yes *Total weight* 1,695.5 kg. *Rad. of gyration* 191 mm *Dia. of flywheel shaft* - *Has each engine been tested in shop?* Yes *How long at full power?* 4 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)* 27th Sept., 1961 *Date of approval of shafting* May 11th, 1961 *Identification marks on shafting* Eng.No.5234 LLOYD'S KOB NO.HI-CK 5234 MH 6-3-62 LR E.No.5235 LLOYD'S KOB NO. HI-CK 5235 MH 6-2-62 LR E.No 5236 LLOYD'S KOB NO.HI-CK5236 MH 6-2-62 LR *Particulars of driven machinery* 1 - A.C. 320 KW Generator for each set

Port and No. of Certificate for Starting Air Receivers Kobe AR-73471

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* Yokohama M-7595
For generators under 100 Kw., has Makers' Certificate been obtained? - *Are Certificates attached?* Yes

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

H. Fukuda
Director & Yard Manager *Manufacturer*
HITACHI SHIPBUILDING & ENGINEERING CO., LTD.
INNOSHIMA SHIPYARD

Is this machinery duplicate of a previous case? Yes *If so, which?* Ship Nos. 3921 & 3922

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 auxiliary generator engine sets have been constructed in accordance with the Rules, Approved Plans and Secretary's letters. The material and workmanship are sound and good. The auxiliary generator sets have been examined under full working conditions in the Shop and found satisfactory.

Survey Fee ¥209,050.-
Expenses —
Date when a/c rendered APR - 3 1962

M. Hayashibara *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. "OKHOTSK" *at* Sakurajima, Japan *in a proper manner and found satisfactory when tested on the (date)* 20th June, 1962 *under full working conditions.*

Engineer Surveyor to Lloyd's Register
L.O. Christensen

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