Rpt. 4c

Date of writing report 25th Feb., 1960 | Received London | Port KOBE | No. FE-7546

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Survey held at Osaka | No. of visits 10 | First date 23rd June, 1958 | Last date 24th Feb., 1960.

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship ..... *Owners (Or Consignees)* .....

(Or Contract No. if name unknown).

Ship Built at Nagasaki *by* Mitsubishi Shipbuilding & Eng. Co., Ltd., Nagasaki Wroks *when* ..... *Yard No.* 1532

Auxiliary Engines ~~of~~ *made at* Osaka, Japan *by* Daihatsu Kogyo K.K. *when* 2,1960 *Eng. Nos.* 525032, 525033, 525034

Total No. of sets and description (including type name) 3, 4 S.C.S.A. Diesel Engine

INTERNAL COMBUSTION RECIPROCATING ENGINES. *No. of cylinders per engine* 5 *Dia. of cylinders* 250mm *Stroke* 320mm

2 or 4 stroke cycle 4 *Maximum approved BHP* 340 *at* 514 *RPM Corresponding MIP* 8.92kg/cm² *Maximum pressure* 55 kg/cm²

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 - *No. of exhaust gas driven blowers or superchargers per engine* 1 *Is welded construction*

used for: Bedplate? Yes *Entablature?* ..... *Total internal volume of crankcase (if 20 cu. ft. or over)* 52.8 ft³ *No. and total area of*

crankcase explosion relief devices 30.1 in² *Are flame guards or traps fitted?* Yes *Cooling medium for: Cylinders* Fresh Water

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

2 Required

SHAFTING. *Is a damper or detuner fitted?* No *No. of main bearings* 6 *Are bearings of ball or roller type?* No *Distance between inner edges of bearings in way of cranks* 318 mm *Crankshaft: Built, semi-built, solid. Material of crankshaft* Solid, Forged Steel *Approved minimum tensile strength* 55 kg/mm² *Dia. of pins* 170mm *Journals* 200mm *Breadth of webs at mid throw* 250mm *Axial thickness* 82mm *If shrunk, radial thickness around eyeholes* - *Dia. of flywheel* 1350mm *Weight* 2200kgs *Are balance weights fitted?* Yes *Total weight* 397 kgs *Rad. of gyration* GD² Flywheel 2500 kgM² Balance weight 75 kgM² *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)* 18-12-59 ✓ 428 P. 10.11.58

Date of approval of shafting 9-9-59 *Identification marks on shafting* LLOYD'S KOB NO.KT-CK 372 MH LR 31-7-58; LLOYD'S KOB NO.KT-CK 373 SH LR 7-8-58; LLOYD'S KOB NO.KT-CK 375 HN LR 14-8-58

Particulars of driven machinery 280 KVA generator for each set and 1-2 stage, capacity 260 M3/H air compressor through Electric Clutch for Eng.No.525033 and 525034 each.

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* YOKOHAMA M-6173 ✓

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)

N. Hirota

Daihatsu Kogyo K. K. *Manufacturer*

N. Hirota

Chief of Osaka Plant

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.*

These engines have been constructed under Special Survey in accordance with the Rules, approved plans and Secretary's letters. The material and workmanship are sound and good.

The engines have been examined under full working condition in the shop and found satisfactory.

¥140,625

Survey Fee ¥147,189.-

Expenses 2,160.-

Date when a/c rendered MAR - 3 1960

M. Kamakura & M. Hayashibara

Engineer Surveyor to Lloyd's Register

M. Kamakura & M. Hayashibara.

Declaration to be signed by Surveyor at fitting-out Port:— The above described machinery has been fitted on board the M.V. "BROOKLYN MARU"

at Nagasaki *in a proper manner and found satisfactory when tested on the (date)* 9-7-1960 *under full working conditions.*

A. Iwai

Engineer Surveyor to Lloyd's Register

012036-012041-0039

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