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Rpt. 4c

13 AUG 1956

Date of writing report 16.7.56. Received London ..... Port MANCHESTER No. 17383.

Survey held at MANCHESTER. No. of visits 7 First date 5.3.56. Last date 11.6.56.

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship Trawler "Muksun" *Owners* U.S.S.R.
(Or Contract No. if name unknown). *(Or Consignees)*

Ship Built at Lowestoft *by* Brooke Marine Ltd. *when* 1956 *Yard No.* 243

Auxiliary Engines ~~or Gas Turbines~~ made at Hazel Grove *by* Mirrlees, Bickerton & Day *when* 1956 *Eng. Nos.* 46069

Total No. of sets and description (including type name) One JS4 Heavy Oil

INTERNAL COMBUSTION RECIPROCATING ENGINES. *No. of cylinders per engine* 4 *Dia. of cylinders* 9¾" *Stroke* 10½"
2 or 4 stroke cycle 4 *Maximum approved BHP* 380(12hr) *at* 750 *RPM Corresponding MIP* 150 lbs *Maximum pressure* 1020 lbs
Fuel Diesel *Are cylinders arranged in Vee or other special formation?* Vertical in line *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* One *Is welded construction used for: Bedplate?* No *Entablature?* No *Total Internal volume of crankcase (if 20 cu. ft. or over)* 30 cu.ft. *No. and total area of crankcase explosion relief devices* Five 312 sq.in. *Are flame guards or traps fitted?* No *Cooling medium for: Cylinders* Water *Pistons* - *No. of attached pumps: F.W. cooling* One *S.W. cooling* One *Lubricating oil* Two *How is engine started?* Compressed Air.

SHAFTING. *Is a damper or detuner fitted?* No *No. of main bearings* 5 *Are bearings of ball or roller type?* Plain *Distance between inner edges of bearings in way of cranks* 11¼" *Crankshaft: ~~Built, semi-built,~~ solid. Material of crankshaft* O.H. Steel *Approved minimum tensile strength* 40 tpsi *Dia. of pins* 6¾" *Journals* 7½" *Breadth of webs at mid throw* 8¾" *Axial thickness* 3" *If shrunk, radial thickness around eyeholes* ..... *Dia. of flywheel* 2' 9" *Weight* 880 lbs *Are balance weights fitted?* Yes *Total weight* 264 lbs. *Rad. of gyration* 8".6 *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?* No *Was the governing tested and found satisfactory?* Yes *Date of approval of torsional vibration characteristics (for engines of 150 BHP and over)* 11.11.54.
Date of approval of shafting 12.8.54. *Identification marks on shafting* CX.6090 LR.673 LVH 5.3.56. 28-2-56
Particulars of driven machinery -

Port and No. of Certificate for Starting Air Receivers Supplied with main engine.

20/8/56

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* .....
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)

MIRRLEES BICKERTON & DAY LTD. HAZEL GROVE, NR. STOCKPORT 21 JUN 1956

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 engine has been constructed under special survey of tested materials and in accordance with the Rules, approved plans and Secretary's letters. The material is sound and free from defects. The workmanship is good. The engine, direct coupled to a dynamometer, was tested at the Engine Builders' Works under the following conditions of loading - 6 hours 100% engine rating, 1 hour 10% overload, governing.

Attached hereto Crank. Cert. F.55234.

Survey Fee £28.0s.0d.
Expenses £ 2.0s.0d.
Date when a/c rendered 11.8.56

L. V Hauser
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.*

Engineer Surveyor to Lloyd's Register

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