

Rpt. 4b

Date of writing report 10/8/56 Received London Ipswich No. 133835
Survey held at Oulton Broad No. of visits 15 In shops 12.8.55 First date 12.8.55 Last date 13.3.56
On vessel 33

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 40903 Name Motor Trawler "MUKSUN" Gross tons 684
Owners V/O Indoimport Managers - Port of Registry humbank
Hull built at Oulton Broad By Brooke Marine Ltd Yard No. 243 Year Month 1956 7
Main Engines made at Openshaw By Hirreles Bickerton & Day Eng. No. 46054 When 1955
Gearing made at - By Bochran & Co Ltd 20604 1955
Donkey boilers made at Grantham By Grantham Boiler & Brant Co Blr. Nos. 30503 When 1955
Machinery installed at Oulton Broad By Brooke Marine Limited When 1956

Particulars of restricted service of ship, if limited for classification None

Particulars of vegetable or similar cargo oil notation, if required None

Is ship to be classed for navigation in ice? Yes Is ship intended to carry petroleum in bulk? No

Is refrigerating machinery fitted? Yes If so, is it for cargo purposes? Yes Type of refrigerant Dichlorodifluoromethane

Is the refrigerating machinery compartment isolated from the propelling machinery space? Yes Is the refrigerated cargo installation intended to be classed? No

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other signs of doubtful meaning are not to be used. Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that report need not be repeated below, but the port and report number should be stated.

No. of main engines 1 No. of propellers 1 Brief description of propulsion system Direct Reversing Pressure Charged Oil Engine

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Hirreles K50M 8

No. of cylinders per engine 8 Dia. of cylinders 15" stroke 18" 2 or 4 stroke cycle 4 Single or double acting Single

Maximum approved BHP per engine 1100 at 260 RPM of engine and 260 RPM of propeller.

Corresponding MIP 155 psi (For DA engines give MIP top & bottom) Maximum cylinder pressure 1000 psi Machinery numeral 5 220

Are the cylinders arranged in Vee or other special formation? No If so, number of crankshafts per engine -

TWO STROKE ENGINES. Is the engine of opposed piston type? - If so, how are upper pistons connected to crankshaft? -

Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? - No. and type of mechanically driven scavenge pumps or blowers per engine and how driven -

No. of exhaust gas driven scavenge blowers per engine - Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? -

If a stand-by or emergency pump or blower is fitted, state how driven - No. of scavenge air coolers - Scavenge air pressure at full power -

Are scavenge manifold explosion relief valves fitted? -

FOUR STROKE ENGINES. Is the engine supercharged? Yes Are the undersides of the pistons arranged as supercharge pumps? No No. of exhaust gas driven blowers per engine 1

No. of supercharge air coolers per engine 1 Supercharge air pressure 12 psi Can engine operate without supercharger? Yes

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel 1 Inlet 2 Exhaust 2 Starting 1 Safety 1

Material of cylinder covers Cast Iron Material of piston crowns Cast Iron Is the engine equipped to operate on heavy fuel oil? Yes

Cooling medium for: Cylinders Fresh Water Pistons Oil Fuel valves - Overall diameter of piston rod for double acting engines -

Is the rod fitted with a sleeve? - Is welded construction employed for: Bedplate? No Frames? No Entablature? No Is the crankcase separated from the underside of pistons? No

Is the engine of crosshead or trunk piston type? Trunk Total internal volume of crankcase 338 cu ft No. and total area of explosion relief devices 8 - 232 sq in

Are flame guards or traps fitted to relief devices? No Is the crankcase readily accessible? Yes If not, must the engine be removed for overhaul of bearings, etc? No

Is the engine secured directly to the tank top or to a built-up seating? E.W. Built up How is the engine started? Compressed Air

Can the engine be directly reversed? Yes If not, how is reversing obtained? -

Has the engine been tested working in the shop? Yes How long at full power? 6 hours at 100% engine rating

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 25.11.54 State barred speed range(s), if imposed

for working propeller None For spare propeller No Spare Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No

Where positioned? - Type - No. of main bearings 9 Are main bearings of ball or roller type? -

Distance between inner edges of bearings in way of crank(s) 14.5" Distance between centre lines of side cranks or eccentrics of opposed piston engines -

Crankshaft type: Built, semi-built, solid. (State which) Solid forged

Diameter of journals 1 1/2" Diameter of crankpins 10 1/2" Centre 18" Axial thickness of webs 5 3/32"

Side - Breadth of webs at mid-throw - Pins Solid Minimum -

If shrunk, radial thickness around eyeholes - Are dowel pins fitted? - Crankshaft material Forged Steel Approved 40 ksi

Webs - Tensile strength -

Diameter of flywheel 4'-6" Weight 4250 lbs Are balance weights fitted? No Total weight - Radius of gyration -

Diameter of flywheel shaft - Material - Minimum approved tensile strength -

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) Integral with crankshaft

012185-01217-0017

MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines _____ Open or closed cycle _____ BHP per set _____ at _____ RPM of output shaft _____

How is drive transmitted to propeller shaft? _____

ARRANGEMENT OF TURBINES. HP drives _____ at _____ RPM HP gas inlet temperature _____ pressure _____

IP drives _____ at _____ RPM IP gas inlet temperature _____ pressure _____

LP drives _____ at _____ RPM LP gas inlet temperature _____ pressure _____

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? _____

How is reversing effected? _____ Are the turbines operated in conjunction with free piston gas generators? _____

Total No. of free piston gas generators _____ Diameter of working pistons _____ Diameter 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 working in the shop? _____ How long at full power? _____

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators _____ KW per generator _____ at _____ RPM AC or DC? _____ Position _____

No. of propulsion motors _____ SHP per motor _____ at _____ RPM Position _____

How is power obtained for excitation of generators? _____ Motors? _____

REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type? _____ If single, position of gear thrust bearing _____ Is gearing of epicyclic type? _____

PCD of pinions: First reduction _____ Second reduction _____ PCD of wheels: First reduction _____ Main _____

Material of pinions _____ Tensile strength _____ Material of wheel rims _____ Tensile strength _____

Are gear teeth surface hardened? _____ How are teeth finished? _____ Diameter of pinion journals _____ Wheel shaft _____

journals _____ Are the wheels of welded construction? _____ Is gearcase of welded construction? _____ Has the wheel/gearcase been heat treated on completion of welding? _____ Where is the propeller thrust bearing located? _____ Are gear bearings of ball or roller type? _____

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give brief description and, for clutches, state how operated.

Can the main engine be used for purposes other than propulsion when declutched? _____ If so, what? _____

STRAIGHT SHAFTING. Diameter of thrustshaft _____ Material _____ Minimum approved tensile strength _____

Shaft separate or integral with crank or wheel shaft? _____ Diameter of intermediate shaft _____ Material _____

Minimum approved tensile strength _____ Diameter of screwshaft cone at large end _____ Is screwshaft fitted with a continuous liner? _____

Diameter of tube shaft. (If these are separate shafts) _____ Is tube shaft fitted with a continuous liner in way of stern tube _____ Thickness of screwshaft liner at bearings _____

Material of screwshaft _____ Minimum approved tensile strength _____

Is an approved oil gland fitted? _____ If so, state type _____ Length of bearing next to and supporting propeller _____

Material of bearing _____ In multiple screw vessels is the liner between stern tube and A bracket continuous? _____ If not, is the exposed length of shafting between liners readily visible in dry dock? _____

PROPELLER. Diameter of propeller _____ Pitch _____ Built up or solid _____ Total developed surface _____

No. of blades _____ Blade thickness at top of root fillet _____ Blade material _____ Moment of inertia of dry propeller _____

If propeller is of special design, state type _____ Is propeller of reversible pitch type? _____ If so, is it of approved design? _____

State method of control _____ Material of spare propeller _____ Moment of inertia _____

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine _____ Can they be declutched? _____

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) _____

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) _____

How are receivers first charged? _____ Maximum working pressure of starting air system _____ Are the safety devices in accordance with the Rules? _____ Has the starting of the main engines been tested and found satisfactory? _____

COOLERS. No. of main engine fresh water coolers _____ No. of main engine lubricating oil coolers _____

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure _____

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) _____

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	SUCTION										DELIVERY					
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Other
Bilge pumps (2) each 34 gals Stand by Oil Pump.	X	X			X	X				X	X		X			X
Fire Pump.			X		X								X			
Boiler Oil Transfer Pump.				X								X				
Diesel Oil Transfer Pump.				X								X				
Lub Oil Pump.								X						X	X	
Cochran Berkeley Pump (2)						X	X		X							
Composite Berkeley Pump (2)						X	X		X							
Distiller pump.						X	X						X			

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room _____

No. and size connected to main bilge line in main engine room _____

In aux. engine room _____

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? _____

special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (strike out words not applicable).

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Port Side forward.	4SC. SA Diesel Oil Eng	Wheeler	1-3" dia in main haul store, 1-3" dia in N 1 fish held, 1-3" dia in N 2 fish held, 1-3" dia in cofferdam in hull meal plant space	53KW DC Gen. & 146 KW DC. haul wind generator.
Port Side aft.	4SC. SA " 4 " 4	Wheeler	2-3" dia aft in eng room, 1-3" dia for in eng room	50KW D.C. Generator
Starboard " "	4SC. SA " 4 " 4	Wheeler	2-3" dia aft in eng room, 1-3" dia for in eng room	18KW D.C. Generator & air compressor.

Is electric current used for essential services at sea? _____

at sea _____

STEAM INSTALLATION. No. of donkey boilers burning oil fuel _____ W.P. _____

Position _____

Is a superheater fitted? _____ Are these boilers also heated by exhaust gas? _____

Type _____ Position _____

the steam range or do they operate only as economisers in conjunction with oil fired boilers? _____

boilers _____

material? _____

units _____

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) _____

Have the Rule Requirements for fire extinguishing arrangements been complied with? _____

Has the spare gear required by the Rules been supplied? _____

power sea trials of main engines _____

The foregoing description of the main engine and installation is correct and the particulars are as approved for _____

Builder _____

GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and give recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

The machinery of this ship has been installed under Special Survey in accordance with the approved plans, Secretary's letters & the Rule requirements of the Society.

The machinery received from the builders has been satisfactorily installed and basin and sea trials witnessed under full power conditions.

The materials & workmanship throughout are good.

In my opinion this installation is eligible for record of LMC 9.56 & TS (CL) 9.56 new - Oil engine - QDB^s - 100 lbs

G. J. Galbraith

Engineer Surveyor to Lloyd's Register of Shipping.

PARTICULARS OF IDENTIFICATION MARKS (Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS

CRANKSHAFT OR ROTORSHAFT

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING

INTERMEDIATE SHAFTS

SCREW AND TUBE SHAFTS

PROPELLERS

OTHER IMPORTANT ITEMS

LLOYDS 2640 SLD A.G. 12.10.55

LLOYDS 2358 SLD A.G. 12.10.55

LLOYDS R3H 3909 BKD A. J 21.7.55

Is the installation a duplicate of a previous case?

YES.

If so, state name of vessel

MY^s PIONEER, PLSHONGA 2nd report NDS 132740 & 133372.

Date of approval of plans for crankshaft

Straight shafting

Gearing

Clutch

Separate oil fuel tanks

11.2.55

Pumping arrangements

22.3.55

Oil fuel arrangements

29.10.54

Cargo oil pumping arrangements

Air receivers

Donkey boilers

Dates of examination of principal parts:—

Fitting of stern tube 15.10.55

Fitting of propeller 15.10.55

Completion of sea connections 19.10.55

Alignment of crank shaft in main bearings 13.3.56.

Engine chocks & bolts 13.3.56.

Alignment of gearing

Alignment of straight shafting 13.3.56

Testing of pumping arrangements 28.7.55

Oil fuel lines

Donkey boiler supports 3.1.56, 6.4.56

Steering machinery 28.7.56.

Windlass 28.7.56.

Date of Committee FRIDAY 28 SEP 1956

Decision

+ LMC 8.56.

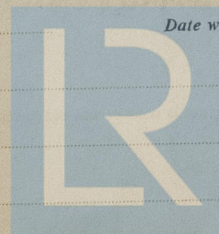
Special Survey Fee

Inst of Machinery £ 43.0.0

Expenses

£ 8.12.0

Date when A/c rendered



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