Rpt. 4b.

REPORT ON OIL ENGINE MACHINERY.

No. 24507.

Received at London Office 10 OCT 1951

Date of writing Report 29th SEPT. 1951. When handed in at Local Office 5th OCTOBER 1951. Port of GREENOCK

No. in Reg. Book. Survey held at GREENOCK Date, First Survey 3RD OCTOBER 1949. Last Survey 18th SEPTEMBER 1951. Number of Visits 93.

Single / on the Twin / Triple / Quadruple Screw vessel BRITISH PIONEER Tons Gross. Net.

Built at GLASGOW By whom built BLYTHSWOOD S.B. Co Ltd Yard No. 97 When built 1951

Engines made at GREENOCK By whom made JOHN G. KINCAID & Co Ltd Engine No. K218 When made 1951

Donkey Boilers made at do By whom made do. Boiler No. K213 When made 1951

Brake Horse Power 3520 MAX 119 rpm 3200 SERVICE Owners BRITISH TANKER Co Ltd Port belonging to LONDON

M.N. Power as per Rule 625 NHP 489 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

Trade for which vessel is intended OPEN SEA SERVICE

OIL ENGINES, &c. —Type of Engines DIESEL (UNDERPISTON SUP^N) 2 or 4 stroke cycle 4 Single or double acting S

Maximum pressure in cylinders 650 lbs/in² Diameter of cylinders 29 1/8" Length of stroke 59 1/16" No. of cylinders 6 No. of cranks 6

Mean Indicated Pressure 115 lbs/in² Ahead Firing Order in Cylinders 1.5.6.2.3.4 Span of bearings, adjacent to the crank, measured from inner edge to inner edge 98 7/8"

Is there a bearing between each crank Yes Revolutions per minute 115

Flywheel dia. 248 9/16" Weight 2499 Kgs Moment of inertia of flywheel (lbs. in² or Kg.cm.²) 23.53 x 10⁶ Means of ignition Compression Kind of fuel used DIESEL OIL HEAVY

Crank Shaft, Solid forged / Semi built / All built dia. of journals as per Rule App^d as fitted 505 7/8" Crank pin dia. 505 7/8" Crank webs Mid. length breadth 980 7/8" Mid. length thickness 310 7/8" shrunk Thickness parallel to axis 310 7/8" Thickness around cyehole 292.57

Flywheel Shaft, diameter as per Rule ✓ as fitted ✓ **Intermediate Shafts,** diameter as per Rule App^d as fitted 17" ✓ **Thrust Shaft,** diameter at collars as per Rule App^d as fitted 454 7/8"

Tube Shaft, diameter as per Rule ✓ as fitted ✓ **Screw Shaft,** diameter as per Rule App^d as fitted 16" ✓ Is the tube / screw shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 13/16" as fitted 13/16" Thickness between bushes as per Rule 13/16" as fitted 13/16" Is the after end of the liner made watertight in the propeller boss Yes If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner ✓

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive ✓ If two liners are fitted, is the shaft lapped or protected between the liners One Is an approved **Oil Gland** or other appliance fitted at the after end of tube shaft No If so, state type ✓ Length of bearing in **Stern Bush** next to and supporting propeller 5'-4" ✓

Propeller, dia 16'-0 Pitch 10'-9" No. of blades 4 Material Bronze whether moveable No Total developed surface 88 sq. feet

Moment of inertia of propeller (lbs. in² or Kg.cm.²) 106.2 x 10⁶ Kind of damper, if fitted None

Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine ~~when declutched~~ Yes Means of lubrication Forced Thickness of cylinder liners 4 1/2" Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material Lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine ✓ **Cooling Water Pumps,** No 2 S.I. 2 ME Steam Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

Bilge Pumps worked from the **Main Engines,** No. None Diameter ✓ Stroke ✓ Can one be overhauled while the other is at work ✓

Pumps connected to the **Main Bilge Line** No. and size Two @ 100 tons One @ 170 tons How driven Steam

Is the cooling water led to the bilges No If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements ✓

Ballast Pumps, No. and size One @ 170 tons/hr **Power Driven Lubricating Oil Pumps,** including spare pump, No. and size 1 ME. 100 tons ea/hr. 1 Spare

Are two independent means arranged for circulating water through the **Oil Cooler** Yes **Suctions,** connected to both main bilge pumps and auxiliary bilge pumps, No. and size:—In machinery spaces Three @ 3 1/2" In pump room M10. 2 @ 4" FORD. 1 @ 2 1/2"

Tween decks, &c. Two @ 2 1/2"

Independent Power Pump Direct Suctions to the engine room bilges, No. and size Two @ 6"

Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suctions in the machinery spaces led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all **Sea Connections** fitted direct on the skin of the Ship or immediately on Yes Are they fitted with valves or cocks Both Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates Yes Are the overboard discharges above or below the deep water line Above

Are they each fitted with a discharge valve always accessible on the plating of the vessel Yes Are the blow off cocks fitted with a spigot and brass covering plate Yes

What pipes pass through the bunkers None How are they protected ✓

What pipes pass through the deep tanks None Have they been tested as per Rule ✓

Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the shaft tunnel watertight None Is it fitted with a watertight door ✓ worked from ✓

In a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork ✓

Main Air Compressors, No. ✓ No. of stages ✓ diameters ✓ stroke ✓ driven by ✓

Auxiliary Air Compressors, No. Two ✓ No. of stages Two ✓ diameters ✓ stroke ✓ driven by Steam

Small Auxiliary Air Compressors, No. ✓ No. of stages ✓ diameters ✓ stroke ✓ driven by ✓

What provision is made for first charging the air receivers Steam compressor as above

Scavenging Air Pumps, No. ✓ diameter ✓ stroke ✓ driven by ✓

Auxiliary Engines crank shafts, diameter as per Rule ✓ as fitted ✓ No. 2. Position E/R Platform. IPS Cert N° D 23284/5.

Have the auxiliary engines been constructed under special survey Yes Is a report sent herewith Yes MCH FE N° 14598

AIR RECEIVERS:—Have they been made under survey Yes ✓ State No. of report or certificate

Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes Relief valve on supply line. Can the internal surfaces of the receivers be examined and cleaned Yes ✓ Is a drain fitted at the lowest part of each receiver Yes ✓

Injection Air Receivers, No. None ✓ Cubic capacity of each ✓ Internal diameter ✓ thickness ✓

Seamless, welded or riveted longitudinal joint ✓ Material ✓ Range of tensile strength ✓ Working pressure by Rules ✓ Actual

Starting Air Receivers, No. Two ✓ Total cubic capacity 900 cu ft Internal diameter 6'-0 1/8" - 5'-10 1/4" thickness 31/32" - 15/16" by Rules 357 lbs

Seamless, welded or riveted longitudinal joint Riveted Material SMS Range of tensile strength 29/33 Tons Working pressure Actual 356 lbs

IS A DONKEY BOILER FITTED Yes ✓ If so, is a report now forwarded Yes

Is the donkey boiler intended to be used for domestic purposes only No ✓

PLANS. Are approved plans forwarded herewith for shafting 20-8-48 (If not, state date of approval) Receivers 9-3-48 Separate fuel tanks 2-3-1

Donkey boilers 26-2-48 General pumping arrangements Pumping arrangements in machinery space 1-9-49

Oil fuel burning arrangements 11-8-49

Have Torsional Vibration characteristics been approved Yes for 115 rpm ✓ Date of approval 20-8-48

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes. ✓

State the principal additional spare gear supplied

Screw shaft LLOYDS 19204F/6323 CNH 6-4-51

C.I. propeller

For JOHN G. KINCAID & COY., LIMITED.

The foregoing is a correct description, C.H. Hammond. Manufacturer.

Chief Draughtsman.

Dates of Survey while building

During progress of work in shops - - (1949) Oct. 3-12 · Dec. 24-29. (1950) Feb. 15 April 14 · May 8-10 June 19-20 July 19-28 Sept. 19-21-24 Oct. 26-31 Nov. 1-10-15-17-22-23-27-28 Dec. 6-8-11-15-18-19-26

During erection on board vessel - - - (1951) Jan. 4-9-11-12-16-17-22-26-30 Feb. 6-7-13-15-20 Mar. 1-7-8-13-15-19-20-23-27-28-29-30 April 2-3-5-6-10-12-17-18-20-23-24-30 May 1-3-7-11-14-23-24-29-30-31 June 6-8-11-13-15-21-25 July 17-24 Aug. 3 Sept. 3-13-18.

Total No. of visits 93.

Dates of examination of principal parts—Cylinders 20-2-51 & 30-3-51 Covers 17-4-51 & 30-3-51 Pistons 27-3-51 Rods 1-5-51 Connecting rods 1-5-51

Crank shaft 1-5-51 Flywheel shaft 1-5-51 Thrust shaft 1-5-51 Intermediate shafts 30-4-51 Tube shaft ✓

Screw shaft 7-3-51 Propeller 7-3-51 Stern tube 1-11-50 Engine seatings 11-5-51 Engine holding down bolts 11-6-51

Completion of fitting sea connections 13-9-51 Completion of pumping arrangements 18-9-51 Engines tried under working conditions 18-9-51

Crank shaft, material SMS Identification mark LLOYDS CNH 19209 1-5-51 Flywheel shaft, material SMS Identification mark as for crankshaft LLOYDS CNH

Thrust shaft, material SMS Identification mark LLOYDS CNH 19209 1-5-51 Intermediate shafts, material SMS Identification marks 19209 30-4-51 LLOYDS CNH

Tube shaft, material ✓ Identification mark ✓ Screw shaft, material SMS Identification mark 19209 7-3-51

Identification marks on air receivers LLOYDS No 3790 A & B

Welded receivers, state Makers' Name 584 lbs TP 356 lbs WP CNH 22-4-51

Is the flash point of the oil to be used over 150°F Yes ✓

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Yes ✓

Description of fire extinguishing apparatus fitted Steam under boiler, Of unit & transfer pump. 10-2 gln portable 1-10 gln with hose

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo TANKER ✓ If so, have the requirements of the Rules been complied with Yes

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with No ✓

Is this machinery duplicate of a previous case Yes ✓ If so, state name of vessel BRITISH PREMIER GRK FEN° 24366

General Remarks (State quality of workmanship, opinions as to class, &c.

The machinery of this vessel has been constructed under Special survey in accordance with the Rules & approved plans. The materials & workmanship are sound & good. The engine & boilers have been efficiently installed in the vessel & tested on a sea trial under full working conditions with satisfactory results. This installation is eligible in my opinion to be classed in the Society's Register book with Record + LMC 9-51 & Notation Screw shaft CL. 2 DB 150 lbs/° FD. fitted for oil fuel FP above 150°F.

Certificates & forging reports covering this engine and K208, K209, K211 already reported are sent herewith.

(The Surveyors are requested not to write on or below the space for Committee's Minute.) Certificate (if required) to be sent to

The amount of Entry Fee ... £ 200 :

Special ... £ :

Donkey Boiler Fee... £ 59 :10 :

Air Reservoirs 16 :10

Travelling Expenses (if any) £ :

When applied for 5th Sept 1951

When received 19

Charles H. Hunter.

Engineer Surveyor to Lloyd's Register of Shipping

GLASGOW 9 OCT 1951

Committee's Minute

Assigned + LMC. 9.51 Oil Engine 2 DB - 150 lbs.