Rpt. 4b.

RECEIVED 25 MAR 1946 IN D.O.

1764

REPORT ON OIL ENGINE MACHINERY.

No. 035/64

Received at London Office 21 MAR 1946

Date of writing Report ... 19 ... When handed in at Local Office 9. 3. 1946 Port of NEWCASTLE-ON-TYNE

No. in Reg. Book. ... Survey held at NEWCASTLE-ON-TYNE. Date, First Survey (1943) January 11th Last Survey 28/2/1946. Number of Visits 136

... on the ~~Single~~ ~~Twin~~ ~~Triple~~ ~~Quadruple~~ Screw vessel TANKER M/V "BRITISH CAUTION." Tons Gross 8533 Net 4923

Built at NEWCASTLE. By whom built SWAN HUNTER & WIGHAM RICHARDSON. Yard No. 1764. When built 1945.

Engines made at NEWCASTLE. By whom made S.H.W.R. Engine No. 1764. When made 1945.

Donkey Boilers made at NEWCASTLE. By whom made S.H.W.R. Boiler No. 1764. When made 1945.

Brake Horse Power 3100. Owners BRITISH TANKERS CO LTD. Port belonging to LONDON.

Nom. Horse Power as per Rule 687. Is Refrigerating Machinery fitted for cargo purposes NO. Is Electric Light fitted YES.

Trade for which vessel is intended OPEN SEA. CARRYING PETROLEUM IN BULK. 91 5/16

OIL ENGINES, &c.—Type of Engines OPPOSED PISTON. AIRLESS INJECTN. 2 or 4 stroke cycle 2. Single or double acting SINGLE.

Maximum pressure in cylinders 568 LBS/□". Mean Indicated Pressure 85 LBS/□". Diameter of cylinders 23 5/8" 600 M/M. Length of stroke COMBINED. 2320 M/M. BETWEEN CENTRES OF SIDE RODS 1200 M/M. UPPER. 980 M/M. LOWER. 1340 M/M. No. of cylinders 4. No. of cranks 4 – 3 THROW.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge F 1800 940 M/M. Is there a bearing between each THREE-THROW crank YES.

Revolutions per minute 105. Flywheel dia. 2450 M/M. Weight 3·25 TONS. 1-1 TON F A Means of ignition COMPRESSION. Kind of fuel used HEAVY OIL.

Crank Shaft, ~~Solid forged~~ / Semi built / All built dia. of journals as ~~per Rule~~ APPD 425 M/M. as fitted 450 M/M. Crank pin dia. 450 M/M. Crank Webs Mid. length breadth 650 M/M. Mid. length thickness 255 M/M. shrunk Thickness parallel to axis 255 M/M. Thickness around eyehole 200 M/M.

Flywheel Shaft, diameter as ~~per Rule~~ APPD 425 M/M. as fitted 450 M/M. **Intermediate Shafts,** diameter as ~~per Rule~~ APPD 13 1/8". fitted 16 7/8". **Thrust Shaft,** diameter at collars as ~~per Rule~~ APPD 425 M/M. as fitted 450 M/M.

Tube Shaft, diameter as per Rule ✓. as fitted ✓. **Screw Shaft,** diameter as ~~per Rule~~ APPD 14·68". as fitted 16 7/8". Is the ~~tube~~ / screw shaft fitted with a continuous liner ✓ YES.

Bronze Liners, thickness in way of bushes as per Rule 9/16" as fitted 27/32". Thickness between bushes as per Rule ✓ as fitted 25/32". 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 ONE LENGTH.

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 TIGHT FIT.

If two liners are fitted, is the shaft lapped or protected between the liners ✓. Is an approved **Oil Gland** or other appliance fitted at the after end of the tube shaft NO. If so, state type ✓. Length of Bearing in **Stern Bush** next to and supporting propeller 5'–8½".

Propeller, dia. 16'–3". Pitch 12'–3". No. of blades 4. Material BRONZE. whether Moveable NO. Total Developed Surface 90. sq. feet

Method of reversing Engines COMPRESSED AIR. Is a governor or other arrangement fitted to prevent racing of the engine ~~which shall be tested~~ YES. Means of lubrication FORCED. Thickness of cylinder liners 25 M/M. 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. TWO. — FW FOR JACKETS. TWO. — SW FOR COOLERS. Is the sea suction provided with an efficient strainer which can be cleared within the vessel S.W. SYSTEM. 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 THREE:- 1 BALLAST 10"×11"×10". 190 T/H. 1 BILGE 7"×7½"×8", & 1 SANITARY 7"×7½"×8". EACH 80 T/H. / 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. 10"×11"×10". 190 T/H. **Power Driven Lubricating Oil Pumps,** including Spare Pump, No. and size TWO: ONE. 8"×7"×18" SIMPLEX 30 T/H. ONE. 100×606 M/M ON ME. 31 T/H.

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 3 – 3½" DIAM. 2 – 2½". In Pump Room 2 – 4" DIAM. In Holds, &c. FOREHOLD. 2 – 2½". STOREROOM. 2 – 2" DIAM. FOREHOLD PUMPROOM. 1 – 2" DIAM.

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size BALLAST PUMP 1 – 6" DIAM. BILGE PUMP. 1 – 5" DIAM.

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 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 BELOW.

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 MCHY AFT. Is it fitted with a watertight door ✓. worked from ✓.

If 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. NONE. No. of stages ✓. Diameters ✓. Stroke ✓. Driven by ✓.

Auxiliary Air Compressors, No. TWO. No. of stages 3. Diameters 11½". 9¼". 2¾" Stroke 7". Driven by STEAM.

Small Auxiliary Air Compressors, No. NONE. No. of stages ✓. Diameters ✓. Stroke ✓. Driven by ✓.

What provision is made for first Charging the Air Receivers STEAM DRIVEN COMPRESSOR.

Scavenging Air Pumps, No. ONE DOUBLE Diameter 1960 M/M. Stroke 608 M/M. Driven by MAIN ENGINES.

Auxiliary Engines crank shafts, diameter as per Rule ✓ as fitted ✓. No. 2 STEAM DRIVEN 30 KW. SETS. / 2 " " AIR COMPRESSORS. } ON STAR SIDE. Position.

Have the Auxiliary Engines been constructed under special survey NO (STEAM ONLY). Is a report sent herewith ✓.

002442-002448-0132

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. ✓

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

Starting Air Receivers, No. TWO. ✓ Total cubic capacity 280 CU.FT. ✓ Internal diameter 4'—1½" ✓ thickness 1 3/32" ✓

Seamless, lap welded or riveted longitudinal joint TR. DBS. ✓ Material STEEL. Range of tensile strength 29/33 TONS. ✓ Working pressure by Rules 602 LBS/□" Actual ✓ 600 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. ✓ (STEAM AUXILIARIES ETC).

PLANS. Are approved plans forwarded herewith for Shafting 26-28/5/42. (If not, state date of approval) Receivers 28-5-42. Separate Fuel Tanks ✓

Donkey Boilers 28-5-42. General Pumping Arrangements 25-2-43. Pumping Arrangements in Machinery Space 21-4-45.

Oil Fuel Burning Arrangements 22-10-42.

SPARE GEAR.

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

State the principal additional spare gear supplied

1 — MAIN SPHERICAL BEARING.
1 — NON-RETURN AIR STARTING VALVE.
1 — CYLINDER RELIEF VALVE.
1 — FUEL PUMP BODY COMPLETE WITH SUC & DEL VALVES
1 — UPPER PISTON SKIRT.
1 — LOWER PISTON SKIRT.
5 — MAIN PISTON RINGS.
4 — PISTON SKIRT SCRAPER RINGS.
6 — RUBBER HOSES FOR UPPER P.W.S.
1 — 6 FEED LUBRICATORS FOR WORKING CYLS.
2 — COMPLETE SETS OF SPRINGS.
2 — COMPLETE SETS OF JOINTS.

The foregoing is a correct description,

For SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.
G. F. Tweed
Director. Manufacturer.

Dates of Survey while building — During progress of work in shops — During erection on board vessel — (1943) Jan. 11, Feb. 26, Dec. 23, 29 (1944) Jan. 11, Mar. 8, 13, 17, 21, Apr. 5, 18, May 5, 12, 25, Aug. 8, 16, 17, 18, 22, 29, Sept. 1, 7, 8, 11, 12, 13, 18, 25, Oct. 11, 13, 16, 17, 18, 20, 24, 25, Nov. 1, 2, 3, 13, 14, 17, 21, 23, 27, 28, 30, Dec. 1, 6, 8, 15, 19, 22, (1945) Jan. 5, 9, 12, 19, 22, 29, Feb. 5, 8, 12, 20, 27, Mar. 1, 9, 12, 14, 16, 19, 23, Apr. 4², 5, 9, 10, 12, 18, 25, May 8, 11, 15, June 5, 6, 7, 8, 11, 12, 14, 15, 18, 20, 22, 26, July 10, 13, ... 20, 28, Aug. 9, 22, 31, Sept. 3, 12, 19, 21, Oct. 2, 8, 11, 23, 25, 29, 30, 31, Nov. 5, 6, 8, 9, 12, 13, 14, 19, 20, 29, Dec. 5, 6, 17, 20, 28 (1946) Feb. 6, 8, 10, 12, 14, 28

Total No. of visits 136

Dates of Examination of principal parts—Cylinders LINERS:- 16-8-44 TO 22-8-44. Pistons 13-10-44. Rods 18-10-44. Connecting rods 25-9-44 16-10-44.

Crank shaft 3-8-44. ~~Flywheel shaft~~ AND. Thrust shaft ✓ Intermediate shafts 3-5-45. Tube shaft ✓

Screw shaft W. 31-8-45. S. 31-10-45. Propeller 8-2-46. Stern tube 11-5-45. Engine seatings 19-9-45. Engines holding down bolts 11-10-45.

Completion of fitting sea connections 21-9-45 Completion of pumping arrangements 14-2-46. Engines tried under working conditions BASIN TRIAL 18-2-46. SEA TRIAL 28-2-46

Crank shaft, Material O.H. STEEL. Identification Mark Nº 11582 11583. ✓ Flywheel shaft, Material ✓ Identification Mark ✓

Thrust shaft, Material O.H. STEEL. Identification Mark Nº 11582 ✓ Intermediate shafts, Material O.H. STEEL. Identification Marks Nº 12331. - 234 Nº 12331. - 235. Nº 12331. - 233 WORK...

Tube shaft, Material ✓ Identification Mark ✓ Screw shaft, Material O.H. STEEL. Identification Mark Nº 14545 - 753 SPA...

Identification Marks on Air Receivers

FORWARD.	AFT.
WT. 800 LBS/□"	WT 800 LBS/□"
WP. 600 LBS/□"	WP. 600 LBS/□"
AEM. 10-4-45.	AEM. 10-4-45.

Steam pipes Basic Steel ?

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 SMOTHERING CONTROLLED FROM DECK. ✓

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

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with NOT DESIRED. ✓

Is this machinery duplicate of a previous case YES. ✓ If so, state name of vessel BRITISH VIRTUE. SH&WR 1762. ✓

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 approved plans, and the Society's Rules, and the materials and workmanship are good.

The main engines were tested in the works under full load, and afterwards the electric welded construction of bedplate, columns, and entablatures were examined and found in good condition.

The machinery has been efficiently installed on board the vessel, and tested under working conditions with satisfactory results, and is eligible in our opinion to have the record ✠LMC 2,46, and the notations 2 DB 150 LBS W.P. TS.CL. OIL ENG. MCHY AFT. 'STEAM PIPES "BESSEMER" STEEL.

The amount of Entry Fee .. £ 6 : 0 :
Special ... ... £ 109 : 7 :
EW. CONSTRUCTION MAIN ENGINES. 12 : 12.
Donkey Boiler Fee ... £ 23 : 10 :
2 STARTING AIR RECEIVERS. Travelling Expenses (if any) £ 4 : 4 :

When applied for, 20 MAR 1946
When received, 19

A. E. Munro.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 5 APR 1946

Assigned +LMC 2,46 Oil Eng C.L.
2 DB. 150lb.

NEWCASTLE-ON-TYNE.

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