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REPORT ON OIL ENGINE MACHINERY.

No 101731
28 DEC 1943

Received at London Office

Date of writing Report 6-12-43 When handed in at Local Office 6-12-43 Port of NEWCASTLE-ON-TYNE

No. in Survey held at Reg. Book. NEWCASTLE-ON-TYNE Date, First Survey 12-6-42 Last Survey 30-11-1943 Number of Visits 79

on the ^{Single} ~~Double~~ ~~Triple~~ ~~Quadruple~~ Screw vessel "EMPIRE MAC CABE"

Tons { Gross 9249
Net 4993

Built at Newcastle (Walker) By whom built Swan, Hunter & Wigham Yard No. 1726 When built 1943

Engines made at ditto By whom made ditto Richardson & Co Engine No. 1724 When made

Donkey Boilers made at ditto By whom made ditto Boiler No. 1726 When made

Brake Horse Power 3,100. Owners Ministry of War Transport Port belonging to Newcastle

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, 23 1/2 91 5/10

OIL ENGINES, &c. Type of Engines opposed piston, Airless injection 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders 568 lb Diameter of cylinders 600 mm Length of stroke 2320 mm No. of cylinders 4 No. of cranks 4 3 throws

Mean Indicated Pressure 85 lb Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 940 mm Is there a bearing between each crank each 3 throws

Revolutions per minute 105 Flywheel dia. 700 mm Weight 24 tons 1/2 Means of ignition Heat 9 Kind of fuel used Heavy oil fuel

Crank Shaft, { Semi built dia. of journals as per Rule 425 mm as fitted 450 mm Crank pin dia. 450 mm Crank Webs Mid. length breadth 650 mm Thickness parallel to axis 255 mm

Flywheel Shaft, diameter as per Rule 425 mm as fitted 450 mm Intermediate Shafts, diameter as per Rule 13 7/8" as fitted 16 7/8" Thrust Shaft, diameter at collars as per Rule 425 mm as fitted 450 mm

Tube Shaft, diameter as per Rule nil as fitted nil Screw Shaft, diameter as per Rule 14 6/8" as fitted 16 7/8" Is the shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 24/32" as fitted 27/32" Thickness between bushes as per Rule 18/32" 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 2 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 a type fit

If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft No

Propeller, dia. 16' 3" Pitch 12' 3" No. of blades 4 Material In Bronze whether Movable No Total Developed Surface 90 sq. feet

Method of reversing Engines Compressed air by Hand Lever Is a governor or other arrangement fitted to prevent racing of the engine when de-clutching Yes Means of lubrication Forced

Thickness of cylinder liners 25 mm Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with non-conducting material lagged

Cooling Water Pumps, No. 2 for Distilled Water for Jackets Is the sea suction provided with an efficient strainer which can be cleared within the vessel In S.W. System Yes

Bilge Pumps worked from the Main Engines, No. nil 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 P. 10" x 11" x 10" duplex, 1 Bilge & 1 Sanitary, each 7" x 7 1/2" x 8" duplex How driven 190 ton/hr Indirect Steam Driven each 80 ton/hr

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" x 11" x 10" duplex Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size Two: - one by M. Eng. (31 ton/hr) one 8" x 7 x 18" simplex 30 ton/hr

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 of 3 1/2" dia., 2 of 2 1/2" dia. to OF Gutterways In Pump Room 2 of 4"

In Holds, &c. Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size one 6" to Ballast Pump, one 5" to Bilge Pump

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 nil How are they protected

What pipes pass through the deep tanks nil 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 nil (machinery 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. nil (Airless dyno) No. of stages Diameters Stroke Driven by

Auxiliary Air Compressors, No. 2 No. of stages 3 Diameters Stroke Driven by Steam Eng.

Small Auxiliary Air Compressors, No. nil No. of stages Diameters Stroke Driven by

What provision is made for first Charging the Air Receivers by steam driven compressor

Scavenging Air Pumps, No. One Dble acting Diameter 1460 mm Stroke 608 mm Driven by lever from M. Eng.

Auxiliary Engines crank shafts, diameter as per Rule nil as fitted nil No. Position

Have the Auxiliary Engines been constructed under special survey Yes Is a report sent herewith

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Center P.T.O.

002846-002852-0017

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. *Two* Cubic capacity of each ✓ Internal diameter ✓ thickness ✓
 Seamless, lap welded or riveted longitudinal joint ✓ Material ✓ Range of tensile strength ✓ Working pressure *by Rules* ✓
Starting Air Receivers, No. *Two* Total cubic capacity *280 cub ft.* Internal diameter *4 1/2"* thickness *1 3/32"*
 Seamless, lap welded or riveted longitudinal joint *TR. Dble Butt straps* Material *Stl.* Range of tensile strength *295 33 tons* Working pressure *by Rules 602 lb* Actual *600 lb*

IS DONKEY BOILERS FITTED? *Yes* ✓ If so, is a report now forwarded? *Yes* ✓
 Is the donkey boiler intended to be used for domestic purposes only *No - also for Steam Condensers etc.*
PLANS. Are approved plans forwarded herewith for Shafting *on 1st 18-4-41* Receivers *28-5-42* Separate Fuel Tanks ✓
 (If not, state date of approval) *at 700' end 30-5-41*

Donkey Boilers *28-5-42* General Pumping Arrangements *12-5-43* Pumping Arrangements in Machinery Space *22-12-42*
 Oil Fuel Burning Arrangements *18-2-41* *at 700' end 12/5/43*
3-6-43. **SPARE GEAR.**

Has the spare gear required by the Rules been supplied *Yes* ✓
 State the principal additional spare gear supplied *1 main Bearing (Spherical), 1 non-ret Air Starting Valve, 1 Cyl relief valve, 1 Fuel pump body complete with chest & delivery valves, 2 shafts for Pistons (upper & lower), 5 main piston rings, 4 scraper rings for Piston skirt, 6 rubber hoses for upper piston water service, 1 six speed Messel lubricator for the engine, 2 complete sets of springs & joints, 12 Rdr tubes, 1 SV Spring, 1 lid for check valve, 1 dog. gauge glasses & packing rings, 2 sets of Comp piston rings for heavy Comp., half set valve & springs for heavy Comp., 2 turner caps, 12 nipples, 12 diaphragms for oil turning masts etc etc*

The foregoing is a correct description,

SWAN, HUNTER, & WILKINSON, LTD. Manufacturer.
G. J. Meehan

Dates of Survey while building	During progress of work in shops--	1942 JUNE 12-17-19 JULY 14-24-27-31. AUG. 6-10-12-14-20-21-24-26-28. SEPT. 7-14-15-16-18-21-22. OCT. 6-7-14-16-23. NOV. 13-24. DEC. 2-21-23.
	During erection on board vessel--	1943 JAN. 3-11. FEB. 16. MAR. 2-4-11-16-25-26-30. APR. 25-7-9-20-21-27. MAY. 10-18-27-31. JUNE 1-3-9-11-21-22. JULY 14-20-23-28. AUG. 4-6-11-19-23. AUG. 27-30. SEPT. 6-9. OCT. 12-28. NOV. 11-26-30.
	Total No. of visits	79

Dates of Examination of principal parts—Cylinders *20-8-42* Covers ✓ Pistons *28-8-42* Rods as Pistons *26-8-42* Connecting rods *3-9-42*
 Crank shaft *14-8-42* Flywheel shaft *as on sh* Thrust shaft *as on sh* Intermediate shafts *7-4-43* Tube shaft ✓
 Screw shaft *7-4-43* Propeller *on ship 27-4-43* Stern tube *20-4-43* Engine seatings *20-4-43* Engines holding down bolts *3-6-43*
 Completion of fitting sea connections *27-4-43* Completion of pumping arrangements *28-10-43* Engines tried under working conditions *on ship 30-11-43*
 Crank shaft, Material *7 Stl* Identification Mark *11002 HAI* Flywheel shaft, Material *7 Stl* Identification Mark *as on sh*
 Thrust shaft, Material *7 Stl* Identification Mark *as on sh* Intermediate shafts, Material *7 Stl* Identification Marks *11565 HAI*
 Tube shaft, Material ✓ Identification Mark *as on sh* Screw shaft, Material *7 Stl* Identification Mark *11565 HAI*

Identification Marks on Air Receivers *Two Starting Air Receivers, marked:-*
 LLOYD'S TEST
 800 LBS.
 WP 600 LBS
 23-12-42 AWAD

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* ✓
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *Yes* ✓ 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 Respect. SHWR. Yard no 1724*
new Rpt 101,186

General Remarks (State quality of workmanship, opinions as to class, etc.)
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 engine was tested in the works under full load, and afterwards, the E. Welded construction Bedplate, columns and outboard were examined and found in good condition. The machinery has been efficiently installed on board the vessel, tested under working conditions with satisfactory results and is eligible, in my opinion, for record + LMC. 12.43., and the notations 2 DB. 150lb. wp, CL. oil eng. machy aft.

The amount of Entry Fee	£ 6 : 0 :	When applied for,	19
Special	£ 109 : 7 :	When received,	19
E.W. Construction M. Eng.	£ 12 : 12 :		
Donkey Boilers Fee	£ 23 : 10 :		
2 Starting Air Recp	£ 4 : 4 :		
Travelling Expenses (if any)	£ :		

A Watt
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute **FRI. 7 JAN 1944**
 Assigned *+ LMC 11.43 Oil Eng. CL. 2 DB. 150 lb*



NEWCASTLE-ON-TYNE

Certificate (if required) to be sent to NEWCASTLE-ON-TYNE

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