

## REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

30 NOV 1942

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Date of writing Report 19 When handed in at Local Office 19 Port of Hull  
 No. in Survey held at Thorne Hull Date, First Survey 24. 7. 42 Last Survey 20. 11. 1942  
 Reg. Book on the Single Screw tug "EMPIRE ARIEL" (Number of Visits 10)  
 Built at Thorne By whom built Richard Dunston Ltd. Yard No. T 373 Tons { Gross 129  
 Engines made at Yarmouth By whom made Crabtree (1931) Ltd. Engine No. 632 When made " "  
 Boilers made at Stockton By whom made Stockton Chemical Engg. & Shipbuilding Co. Ltd. Boiler No. 6585 When made "  
 Registered Horse Power Owners: Overseas Transport & Salvage Co. Ltd. Port belonging to  
 Nom. Horse Power as per Rule 85 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes  
 Trade for which vessel is intended Towing Services

ENGINES, &c.—Description of Engines Triple Expansion - See Spanish Rpt. No 110,643. Revs. per minute 150  
 Dia. of Cylinders 11 3/4, 19 1/2, 32 Length of Stroke 22 No. of Cylinders 3 No. of Cranks 3  
 Crank shaft, dia. of journals as per Rule 6 3/8 Crank pin dia. 6 3/8 Mid. length breadth Thickness parallel to axis 4 1/2  
 as fitted 6 3/8 Crank webs shrunk Thickness around eye-hole 2 13/16  
 Intermediate Shafts, diameter as per Rule 6 1/4 Thrust shaft, diameter at collars as per Rule 6 3/8  
 as fitted 6 1/4 as fitted 6 3/8  
 Tube Shafts, diameter as per Rule Screw Shaft, diameter as per Rule 7 1/8 Is the { tube screw } shaft fitted with a continuous liner { No  
 as fitted Thickness between bushes as fitted Is the after end of the liner made watertight in the  
 propeller boss. 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. Is an approved Oil Gland or other appliance fitted at the after end of the tube  
 shaft YES If so, state type Newark Length of Bearing in Stern Bush next to and supporting propeller 2-5  
 Propeller, dia. 8'-0" Pitch 8'-4" No. of Blades 4 Material C.I. whether Moveable No Total Developed Surface 28 sq. feet  
 Feed Pumps worked from the Main Engines, No. One Diameter 2 1/2" Stroke 11 Can one be overhauled while the other is at work  
 Bilge Pumps worked from the Main Engines, No. One Diameter 2 1/2" Stroke 11 Can one be overhauled while the other is at work  
 Feed Pumps { No. and size One 6" x 4 1/2" x 10" Pumps connected to the { No. and size One 5" x 3 1/2" x 6"  
 { How driven Ind. Stm. Main Bilge Line { How driven Ind. Stm.  
 Ballast Pumps, No. and size None Lubricating Oil Pumps, including Spare Pump, No. and size None  
 Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary  
 Bilge Pumps:—In Engine and Boiler Room One each of 2" dia. also direct suction - see below  
 In Pump Room Bunker tunnel one of 2" dia. In Holds, &c. One each of 2" dia. in fore & aft compartments  
 Peck fitted with drain valve controlled from upper deck  
 Main Water Circulating Pump Direct Bilge Suctions, No. and size One 3 1/2" dia. Independent Power Pump Direct Suctions to the Engine Room Bilges,  
 No. and size F.B. space, one each 2 1/2" dia. Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes YES  
 Are the Bilge Suctions in the Machinery Space 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 or on robust steel Are they fitted with Valves or Cocks Both  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold 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 No Is it fitted with a watertight door. Access from above worked from

MAIN BOILERS, &c.—(Letter for record 5) Total Heating Surface of Boilers 1367 sq. ft.  
 Which Boilers are fitted with Forced Draft The only boiler Which Boilers are fitted with Superheaters None  
 No. and Description of Boilers 158 Working Pressure 200 lb.  
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? Yes  
 IS A DONKEY BOILER FITTED? No If so, is a report now forwarded? Yes  
 Can the donkey boiler be used for domestic purposes only.  
 PLANS. Are approved plans forwarded herewith for Shafting 29-11-39 Main Boilers 16-7-41 Auxiliary Boilers Donkey Boilers  
 (If not state date of approval)  
 Superheaters General Pumping Arrangements 17-3-41 Oil fuel Burning Piping Arrangements

## SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes  
 State the principal additional spare gear supplied See attached list

The foregoing is a correct description.

Manufacturer.



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Lloyd's Register  
Foundation

007563-007571-0095



'E. ARIEL'

During progress of work in shops - -	{	
Dates of Survey while building	{	1942. July 24. Sept 8. 17. 25. Oct 15. 29. Nov. 5. 16. 18. 20.
During erection on board vessel - - -	{	
Total No. of visits.....		10.

Dates of Examination of principal parts—Cylinders..... Slides..... Covers.....

Pistons..... Piston Rods..... Connecting rods.....

Crank shaft..... Thrust shaft..... Intermediate shafts.....

Tube shaft..... Screw shaft..... Propeller.....

Stern tube..... Engine and boiler seatings..... Engines holding down bolts.....

Completion of fitting sea connections.....

Completion of pumping arrangements..... Boilers fixed..... Engines tried under steam.....

Main boiler safety valves adjusted..... Thickness of adjusting washers.....

Crank shaft material..... Identification Mark..... Thrust shaft material..... Identification Mark.....

Intermediate shafts, material..... Identification Marks..... Tube shaft, material..... Identification Mark.....

Screw shaft, material..... Identification Mark..... Steam Pipes, material..... Test pressure..... Date of Test.....

Is an installation fitted for burning oil fuel..... Is the flash point of the oil to be used over 150° F. ✓

Have the requirements of the Rules for the use of oil as fuel been complied with. ✓

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. ✓

Is this machinery duplicate of a previous case..... If so, state name of vessel.....

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

The machinery noted above has been installed on board  
-Empire Arise- in accordance with the Rules, approved plans,  
and to the Specification. The workmanship and materials are good  
and when tested as prescribed in the Rules & Specification the  
machinery was found satisfactory in every respect.  
Eligible to have records \* LMC 11,42 OG. and notation of  
T. 3 cy.  $11\frac{3}{4}$ ,  $19\frac{1}{2}$ , 32 - 22. NHP 85.  
1 SB. 200 lb., 2 cf., FD.  
GS 36.5 # HS 1367 #.

The amount of Entry Fee	...	£	:	:	When applied for,
Special (part)...	...	£	5	11:9	1942
Donkey Boiler Fee	...	£	:	:	When received,
Travelling Expenses (if any)	£	:	:	:	19

W. S. Shields  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 15 DEC 1942  
+ Lumb 11.42  
Assigned 22.09