

## REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

22 MAY 1942

Date of writing Report 19 When handed in at Local Office 18 May 1942 Port of **SUNDERLAND.**  
 No. in Survey held at **SUNDERLAND.** Date, First Survey 25 Sep. 41 Last Survey 14 May 1942  
 Reg. Book. on the **815 EMPIRE KEATS** (Number of Visits 76)  
 Built at **Sunderland** By whom built **Short Bros Ltd** Yard No. **470** Tons { Gross **7035**  
 Engines made at **do** By whom made **H.S. Mar. Eng. Co. (1938) Ltd.** Engine No. **4015** When made **do.**  
 Boilers made at **do** By whom made **do.** Boiler No. **do.** When made **do.**  
 Registered Horse Power **510** Owners **M.O.W.T. (Charlton McAlum & Co)** Port belonging to **Sunderland**  
 Nom. Horse Power as per Rule **510** Is Refrigerating Machinery fitted for cargo purposes **no** Is Electric Light fitted **yes**  
 Trade for which Vessel is intended **General**

**ENGINES, &c.**—Description of Engines **Triple Expansion** Revs. per minute  
 Dia. of Cylinders **24 1/2", 39", 70"** Length of Stroke **48"** No. of Cylinders **3** No. of Cranks **3**  
 Crank shaft, dia. of journals **as per Rule** **appd.** 14.00 Crank pin dia. **14 3/4"** Crank webs Mid. length breadth **shrunk** Thickness parallel to axis **9"**  
 Intermediate Shafts, diameter **as per Rule** **appd.** 13.32 as fitted **13 5/8"** Thrust shaft, diameter at collars **as per Rule** **appd.** 14.00 as fitted **14 1/4"**  
 Tube Shafts, diameter **as per Rule** **appd.** 15.14 as fitted **15 1/4"** Is the { tube } shaft fitted with a continuous liner { **yes** }  
 Screw Shaft, diameter **as per Rule** **appd.** 21.32 as fitted **21 1/2"** Is the after end of the liner made watertight in the  
 Bronze Liners, thickness in way of bushes **as per Rule** **appd.** 13/16" **25/32"** Thickness between bushes **as per Rule** **appd.** 21/32" If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner **yes**  
 propeller boss **yes** 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 **no**  
 If two liners are fitted, is the shaft lapped or protected between the liners **no** Is an approved Oil Gland or other appliance fitted at the after end of the tube **5-1"**  
 shaft **no** If so, state type **Length of Bearing in Stern Bush next to and supporting propeller**  
 Propeller, dia. **17-10 1/2"** Pitch **15-6"** No. of Blades **4** Material **C.T.** whether Moveable **not** Total Developed Surface **114 3/4"** sq. feet  
 Feed Pumps worked from the Main Engines, No. **—** Diameter **—** Stroke **36"** Can one be overhauled while the other is at work **—**  
 Bilge Pumps worked from the Main Engines, No. **2** Diameter **4"** Stroke **27"** Can one be overhauled while the other is at work **yes**  
 Feed Pumps { No. and size **2** **9 1/2" x 7" x 21"** Pumps connected to the Main Bilge Line { No. and size **1** **10 1/2" x 13" x 24"** **41** **9 1/2" x 7" x 21"**  
 How driven **Steam** How driven **200** **Stane** **70**  
 Ballast Pumps, No. and size **1** **10 1/2" x 13" x 24"** Lubricating Oil Pumps, including Spare Pump, No. and size **—**  
 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 **2 at 2 1/2" dia.** **By Tank 2 at 2 1/2" dia.** **Bkr. Rm. 2 at 3" dia.**  
 In Pump Room **2 at 3" dia. in Nos 1, 2, 3, 4 & 5 Holds,**  
**1 at 2 1/2" dia. tunnel well.**

Main Water Circulating Pump Direct Bilge Suctions, No. and size **1 at 9" dia.** Independent Power Pump Direct Suctions to the Engine Room Bilges,  
 No. and size **1 at 5" dia. & Flex. hose** 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** Are they fitted with Valves or Cocks **yes**  
 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 **both**  
 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 **Ind. hold suction** How are they protected **bilge ladders**  
 What pipes pass through the deep tanks **—** 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 **yes** Is it fitted with a watertight door **—** worked from **—**

MAIN BOILERS, &c.—(Letter for record **S**) Total Heating Surface of Boilers **7248 sq. ft.**  
 Is Forced Draft fitted **yes** No. and Description of Boilers **3 S. Boilers (Cylindrical)** Working Pressure **220 lbs.**  
 IS A REPORT ON MAIN BOILERS NOW FORWARDED? **yes**  
 IS A DONKEY BOILER FITTED? **no** If so, is a report now forwarded? **—**  
 Is the donkey boiler intended to be used for domestic purposes only **—**

PLANS. Are approved plans forwarded herewith for Shafting **2/10/41** Main Boilers **In London** Auxiliary Boilers **—** Donkey Boilers **—**  
 (If not state date of approval)  
 Superheaters **—** General Pumping Arrangements **In London** 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 **—**



1941. Sep. 25. Oct. 11, 23. Nov. 12, 24. Dec. 4, 5, 9, 10, 11, 12, 15, 16, 18, 20, 30, 31. 1942. Jan. 2, 6, 7, 8, 9, 12, 13.  
 During progress of work in shops - -  
 14, 15, 16, 20, 21, 22, 24, 27, 28, 29, 30. Feb. 2, 4, 7, 10, 12, 13, 14, 17, 18, 20, 21, 23, 25, 26, 28. Mar. 2, 4, 6, 9, 10, 11, 12, 14, 16.  
 Dates of Survey while building  
 During erection on board vessel - -  
 17, 20, 21, 24, 26, 27, 30, 31. Apr. 2, 4, 7, 9, 11, 13, 14, 24. May 1st.  
 Total No. of visits 76

Dates of Examination of principal parts—Cylinders 14/17/2/42 2/3/42 Slides 2/1/3/42 Covers 14/2/42 2/3/42  
 Pistons 21/3/42 Piston Rods 23/2/42 Connecting rods 23/2/42  
 Crank shaft 6/3/42 Thrust shaft 24/1/42 Intermediate shafts 3/4/42  
 Tube shaft — Screw shaft 16/3/42 Propeller 24/3/42  
 Stern tube 20/2/42 Engine and boiler seatings 2/2/42 Engines holding down bolts 3/4/42  
 Completion of fitting sea connections 2/2/42  
 Completion of pumping arrangements 24/4/42 Boilers fixed 24/4/42 Engines tried under steam 24/4/42  
 Main boiler safety valves adjusted 24/4/42 Thickness of adjusting washers *Stn 5/16" Stn 3/8" port; Centre 5/16" Stn 1/2" port*  
 Crank shaft material *Steel* Identification Mark 10932 Thrust shaft material *Steel* Identification Mark 10932  
 Intermediate shafts, material *Steel* Identification Marks 10932 Tube shaft, material — Identification Mark —  
 Screw shaft, material *Steel* Identification Mark 10932 Steam Pipes, material *Steel* Test pressure 660 lb. Date of Test 26/3/42  
 Is an installation fitted for burning oil fuel *no* 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 *no* 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 required*  
 Is this machinery duplicate of a previous case *yes* If so, state name of vessel "EMPIRE NEWTON"  
 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, Secretary's letters & the requirements of the Rules. Workmanship and materials are good.

The machinery has been specifically fitted on board and tried under working conditions, at the quay wall, and found satisfactory and is eligible, in my opinion, for the

NOTATION + L.M.C. 5.42, C.L., 35.B. 220 lbs. (P.D.).

*L.R. Home*

The amount of Entry Fee	£ 6 :	:	When applied for,
Special	£ 100 :	10 :	19 May 1942
Donkey Boiler Fee	£ 25 :	2 :	When received,
Travelling Expenses (if any)	£ :	:	19

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 2 JUN 1942  
 Assigned *+ Lmb. 5.42*  
*70, CL*