

REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office 30 OCT 1942

Date of writing Report 27/10/42 When handed in at Local Office 27/10/42 Port of *W. Hartlepool*

No. in Survey held at *Hartlepool* Date, First Survey 25th April, Last Survey 24th October 1942
 Reg. Book. on the *S.S. "EMPIRE NUGGET"* (Number of Visits 81)

Built at *Haverhill* By whom built *Furness Shipbuilding Co Ltd.* Yard No. *349* Tons {Gross Net} When built *1942*

Engines made at *Hartlepool* By whom made *Richardson Westgarth Co* Engine No. *2429* When made "*"*

Boilers made at "*"* By whom made "*"* Boiler No. *2429* When made "*"*

Registered Horse Power Owners *MINISTRY OF WAR TRANSPORT.* Port belonging to *LONDON.*

Nom. Horse Power as per Rule *674* Is Refrigerating Machinery fitted for cargo purposes *NO* Is Electric Light fitted *Yes*

Trade for which Vessel is intended

ENGINES, &c.—Description of Engines *Infl. expansion vertical Surface Condensing* Revs. per minute *85.5*

Dia. of Cylinders *27" x 44" x 70"* Length of Stroke *51"* No. of Cylinders *3* No. of Cranks *3*

Crank shaft, dia. of journals as per Rule *15.214"* Crank pin dia. *16"* Crank webs Mid. length breadth Thickness parallel to axis *95" 10 1/8"*
 as fitted *15 1/2"* Mid. length thickness shrunk Thickness around eye-hole *8 1/2"*

Intermediate Shafts, diameter as per Rule *14.49"* Thrust shaft, diameter at collars as per Rule *15.214"*
 as fitted *14 3/4"* as fitted *15 3/4" - 15 1/2"*

Tube Shafts, diameter as per Rule *16.01"* Screw Shaft, diameter as per Rule *16 1/4"* Is the *tube* shaft fitted with a continuous liner *Yes*
 as fitted *16 1/4"* as fitted *16 1/4"*

Bronze Liners, thickness in way of bushes as per Rule *179"* Thickness between bushes as per Rule *59"* Is the after end of the liner made watertight in the
 as fitted *13 1/6"* as fitted *13 1/6"* 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 *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 *Yes*

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 *Yes*

Propeller, dia. *18'-3"* Pitch *Varying* No. of Blades *4* Material *Brass* whether Moveable *No* Total Developed Surface *131.75* sq. feet

Feed Pumps worked from the Main Engines, No. *2* Diameter *5"* Stroke *27"* Can one be overhauled while the other is at work *Yes*

Bilge Pumps worked from the Main Engines, No. *2* Diameter *5"* Stroke *27"* Can one be overhauled while the other is at work *Yes*

Feed Pumps { No. and size *2-12" x 9" x 24"* *1-9" x 6" x 10"* Pumps connected to the { No. and size *2-5" x 24"* *5" Connection Ballast Pump*
 How driven *Steam* Main Bilge Line How driven *Main Engine* *Steam*

Ballast Pumps, No. and size *1-10" x 12" x 12"* Lubricating Oil Pumps, including Spar Pump, No. and size *1-5" x 5"*

Are two independent means arranged for circulating water through the Oil Cooler *Yes* Suctions, connected to both Main Bilge Pumps and Auxiliary *Yes*

Bilge Pumps;—In Engine and Boiler Room *3 1/2" aft. well, 3 1/2" ER, 3 1/2" ER, 2 1/2" Coffdam, 3 1/2" BR, 3 1/2" BR.*

In Pump Room *Main 2-4" For 1-2 1/2"* In Holds, &c. *For 1-4" Deep Tank 2-2 1/2" For Coffdam 1-4"*

CH 1-4" aft Coffdam 1-3" ejector

Main Water Circulating Pump Direct Bilge Suctions, No. and size *1-10" p* Independent Power Pump Direct Suctions to the Engine Room Bilges, *1-5" S*

Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes *mud box valve & tail pipe*

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 *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 *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*

That Pipes pass through the bunkers *None* How are they protected *Yes*

That pipes pass through the deep tanks *Yes* Have they been tested as per Rule *Yes*

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 *Yes* worked from *Yes*

MAIN BOILERS, &c.—(Letter for record *S*) Total Heating Surface of Boilers *10020* ft²

Which Boilers are fitted with Forced Draft *all* Which Boilers are fitted with Superheaters *all*

No. and Description of Boilers *3 SE Mullitabular* Working Pressure *220 LB./sq"*

IS A REPORT ON MAIN BOILERS NOW FORWARDED? *Yes*

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

Can the donkey boiler be used for domestic purposes only

PLANS. Are approved plans forwarded herewith for Shafting *2/1/40* Main Boilers *16/10/39* Auxiliary Boilers *Yes* Donkey Boilers *Yes*
 (If not state date of approval) *30/10/39*

Superheaters *Yes* General Pumping Arrangements *Yes* Oil fuel Burning Piping Arrangements *28/10/41*

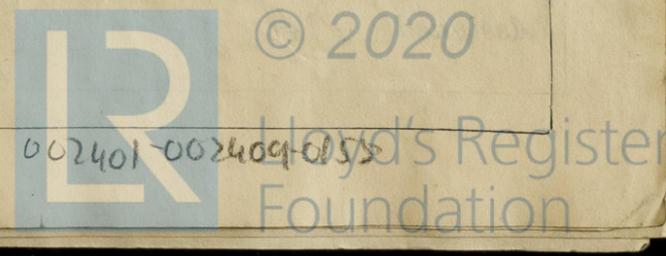
SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*

State the principal additional spare gear supplied *1-C.I. propeller 2-1/2 bottom end crasses 2-B.E. bolts cruts, 4-1/2 top end crasses*
Top end bolts cruts, 2 Main Bearing bolts cruts, 6 coupling bolts cruts, 12 piston studs, 1 set Air Pump Valve
Bilge Pump valves seats, 1 set HP piston rings, 1 set wearing parts Piston Rod Packing, 1 set Michell Thrust pads
Cond. tubes & 100 ferrules, 1 HP & 1 MP poppet valve, 2 rollers with pins & bearings 5 HP & 5 MP main springs
1 HP & 1 MP roller springs, 4 sprindles bushes for valve cage covers, 1 check valve lid, 12 boiler tubes, 1 circulating
ump shaft, 8 valves seats for Main Feed Pumps, 1 set valve seats & springs & bushes rings for Main Feed
umps, 1 set valves seats for Oil Transfer pumps, 1 set piston rings for one pump also set of valve
springs for oil burning installation.

The foregoing is a correct description.
 For RICHARDSONS, WESTGARTH & Co. LIMITED.

W. J. A. Mudge DIRECTOR Manufacturer.



Rpt. 5a
 Date of writ
 No. in Reg. Book.
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1942. April 23-29. May 11-12-13-15-20-29. June 8-15-16-29. July 2-6-8-9-13-15-16-17-18-21-22-24. Aug. 6-7-8-10-11-12-13
 During progress of work in shops - -
 14-17-18-19-20-21-22-24-25-26-27-28-31. Sept. 1-2-3-4-5-7-9-10-11-12-14-15-16-18-21-22-23-24-25-30. Oct. 1-2-3-6-9-10-12-13-14-15-16-17-19-20-22-23-24.
 Dates of Survey while building
 During erection on board vessel - - -
 1942 Sept. 14-19-25. Oct. 5-8-13-15-20-24-27-28-30. Nov. 3-5-10-14.
 Total No. of visits 81 16 (Incl.)

Dates of Examination of principal parts—Cylinders 12/5 Slides 19/6 Covers 19/6
 Pistons 19/6 Piston Rods 19/6 Connecting rods 24/5
 Crank shaft 15/5 Thrust shaft 8/7 Intermediate shafts 9/9
 Tube shaft ✓ Screw shaft 9/9 Propeller
 Stern tube 12/9 Engine and boiler seatings 13/10/42 Engines holding down bolts 15/10/42
 Completion of fitting sea connections 25/9/42
 Completion of pumping arrangements 5/11/42 Boilers fixed 13/10/42 Engines tried under steam 3/11/42
 Main boiler safety valves adjusted 3/11/42 Thickness of adjusting washers Port Ber 13/32 5 1/2" Superh 3/8" 5/16 9/16
 Crank shaft material Steel Identification Mark 10808 H.A.T. Thrust shaft material Steel Identification Mark 10808 H.A.T.
 Intermediate shafts, material Steel Identification Marks 11271 H.A. Tube shaft, material ✓ Identification Mark
 Screw shaft, material Steel Identification Mark 11271 H.A. Steam Pipes, material Steel Test pressure 660 LBS Date of Test 20/10
 Is an installation fitted for burning oil fuel Yes Is the flash point of the oil to be used over 150°F. Yes
 Have the requirements of the Rules for the use of oil as fuel been complied with Yes
 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 Yes ✓ If so, state name of vessel 24/16 5/8 EMPIRE GRENADIER

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The engines & boiler of this vessel have been constructed under Special Survey in accordance with the Specification & approved plans. The workmanship & materials have been found good. The machinery has been provided to Havelock Bell to be fitted on board by Messrs. Jones Shipbuilding Co. in their Yard No 349. In my opinion, this vessel will be eligible to have record of +LMC with date on completion. The machinery fitted on board in accordance with approved plans & Rule Requirements, tried under working conditions & found satisfactory. In our opinion is eligible for record of +LMC 11.42 notation TS (CL) 11.42

This Surveyors are requested not to write on or below the space for Committee's Minute.

The amount of Entry Fee ...	£ 6 : 0 :	When applied for,
Special ⁴ / ₅ LMC ...	£ 86 : 19 :	23/10/1942
Superintension Donkey Fee ...	£ 21 : 15 :	23/11/42
Spec ⁵ / ₅ LMC ...	£ 21 : 15 :	When received,
Travelling Expenses (if any) ...	£ 5 : 8 :	19.....

Clive Bell & S. Wood
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned J. J. C. 11.42
 Fitted for oil fuel
 J. J. C.

