

## REPORT ON MACHINERY

No. 33278

Received at London Office 18 MAR 1922

Writing Report

When handed in at Local Office

7/3/22 Port of Hull.

Survey held at Hull

Date, First Survey

26-4-20

Last Survey

Mar 1 1922

Book.

(Number of Visits 154)

Gross 8526

Tons Net 5639.

Master

Built at Hull

By whom built

Carter &amp; Co. Ltd.

When built

1922.

Engines made at Hull

By whom made

do

when made

1922.

Milers made at do

By whom made

do

when made

1922.

Registered Horse Power 1230 N.H.P.

Owners

Federal Steam Navigation Co. Ltd.

Port belonging to

London.

Shaft Horse Power at Full Power 5500

Is Refrigerating Machinery fitted for cargo purposes

Yes

Is Electric Light fitted

Yes.

Turbine Engines, &amp;c.—Description of Engines

DOUBLE REDUCTION GEARING

No. of Turbines

1-HP  
1-HP  
1-LP

Diameter of Rotor Shaft Journals, H.P. 8 MP 4 1/2" L.P. 8"

Diameter of Pinion Shaft

HP 8 MP 7 1/2" LP 13 1/2"

Diameter of Journals HP 8 MP 5" LP 7"

Distance between Centres of Bearings

HP 8 MP 2-4" Diameter of Pitch Circle HP 8 MP 8.864" LP 14.701"

Diameter of Wheel Shaft 1 1/2"

Distance between Centres of Bearings

8-0"

Diameter of Pitch Circle of Wheel 140.318"

Width of Face 2-0" LP 2-0" HP 1-6"

Diameter of Thrust Shaft under Collars

17 1/2"

Diameter of Tunnel Shaft

as per rule 16.07"

No. of Screw Shafts ONE

Diameter of same

as fitted 17.2"

Diameter of Propeller

19-5"

Pitch of Propeller

17-7 1/2"

No. of Blades 4 State whether Moveable YES

Total Surface

125 sq ft

Diameter of Rotor Drum, H.P. 13" L.P. 3-8"

Thickness at Bottom of Groove, H.P. SOLID L.P. DISCS

Astern DISCS

Revs. per Minute at Full Power, Turbine

HP 1800 LP 1800

Propeller 85

## PARTICULARS OF BLADING.

H.P. &amp; MP.

L.P. AND

ASTERN.

	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
EXPANSION	IMPULSE WHEEL 2-5" MEAN DIA	1-5 1/2"	10	1ST 3"	3-6"	4	HP	2-9" MEAN DIA IMPULSE WHEEL	
1ST	2 1/2"	1-6 1/2"	10	2ND 3 1/2"	3-7 1/2"	4	ASTERN	2 ROWS ON ROTOR 1, IN CYL.	
2ND	2 1/2"	1-9 1/2"	4	3RD 5"	3-10"	4	1ST LP 1 1/2"	3-9 1/2"	1
3RD	3 1/2"	1-11 1/2"	6	4TH 3 1/2"	4-11"	2	2ND 2 1/2"	3-10 1/2"	1
4TH	3 1/2"	2-1 1/2"	5	5TH 4 1/2"	5-1"	2	3RD 3 1/2"	4-0 1/2"	1
				6TH 5 1/2"	5-2 1/2"	1	4TH	"	1
				7TH 6 1/2"	5-4 1/2"	1	5TH	"	1
				8TH 7 1/2"	5-6 1/2"	1			
				9TH 10 1/2"	5-9 1/2"	1 EACH			

and size of Feed pumps 2 CLARK CHAPMAN 14" x 24" x 10 1/2" ONE HARBOUR FEED PUMP 12" x 24" x 9"

and size of Bilge pumps ONE DUPLEX PUMP 8" x 18" x 8"

and size of Bilge suction in Engine Room TWO @ 3 1/2" IN ENGINE ROOM TWO @ 3 1/2" IN STOKHOLD

In Holds, &amp;c. No. 1 HOLD 2 @ 3 1/2" No. 2 HOLD 2 @ 3 1/2" No. 3 HOLD 2 @ 3 1/2" OIL

No. 4 HOLD 2 @ 3 1/2" No. 5, HOLD 2 @ 3 1/2"

No. of Bilge Injections 1 sizes 15" Connected to condenser, or to circulating pump Circ. Pump Is a separate Donkey Suction fitted in Engine Room &amp; size YES 8 BORE

Are all the bilge suction pipes fitted with roses YES Are the roses in Engine room always accessible YES

Are all connections with the sea direct on the skin of the ship YES Are they 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 Discharge Pipes 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

How are they protected

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times YES

Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges YES

Is the Screw Shaft Tunnel watertight YES Is it fitted with a watertight door YES worked from ENG ROOM GRATING

MILERS, &amp;c.—(Letter for record 5) Manufacturers of Steel J. SPENCER &amp; SONS LTD

Total Heating Surface of Boilers 17375 sq ft Forced Draft fitted YES No. and Description of Boilers 5 SINGLE ENDED MULTIPLE

Working Pressure 190 LBS. Tested by hydraulic pressure to 335 LBS. Date of test 19/10/21, 10/11/21, 14/11/21 No. of Certificate 3499, 3491, 3492, 3493

Can each boiler be worked separately YES Area of fire grate in each boiler 48 sq ft No. and Description of Safety Valves to

in boiler TWO SPRING LOADED Area of each valve 13.3 sq ft Pressure to which they are adjusted 195 LBS. Are they fitted with easing gear YES

Smallest distance between boilers or uptakes and bunkers 24" Mean dia. of boilers 14-6" Length 12-0" Material of shell plates Steel

Thickness 1 1/4" Range of tensile strength 31.9 to 35 TONS. Are the shell plates welded or flanged NO Descrip. of riveting: cir. seams D.R.L.

No. of seams 7, R, D, B, S Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 9 1/2" Lap of plates or width of butt straps 1-9"

Percentages of strength of longitudinal joint rivets 94% Working pressure of shell by rules 190.5 LBS. Size of manhole in shell 16" x 12"

plates 85.3% of compensating ring 29 1/2" x 33 1/2" x 1 1/8" No. and Description of Furnaces in each Boiler 4 DEIGHTONS Material STEEL Outside diameter 3-10 1/4"

Length of plain part top Thickness of plates crown 5" Description of longitudinal joint WELDED No. of strengthening rings

bottom 1 1/8" Working pressure of furnace by the rules 215 Combustion chamber plates: Material STEEL Thickness: Sides 1/2" Back 1/2" Top 1/2" Bottom 1"

Pitch of stays to ditto: Sides 9" x 8 1/2" Back 9 1/2" x 8" Top 8 1/2" x 9 1/2" If stays are fitted with nuts or riveted heads NUTS Working pressure by rules 218 LBS.

Material of stays Steel Diameter at smallest part 2.07" Area supported by each stay 1/4" Working pressure by rules 250 LBS. End plates in steam space

Material Steel Thickness 1 1/2" Pitch of stays 20 1/2" x 1 1/8" How are stays secured IN &amp; W. Working pressure by rules 198 LBS. Material of stays Steel

Diameter at smallest part 7.24" Area supported by each stay 368" Working pressure by rules 204.5 LBS. Material of Front plates at bottom Steel

Thickness 1" Material of Lower back plate Steel Thickness 3/8" Greatest pitch of stays 14 1/2" x 8 1/2" Working pressure of plate by rules 200 LBS.

Diameter of tubes Pitch of tubes 4 3/8" x 4 3/8" Material of tube plates Steel Thickness: Front 1" Back 1/8" Mean pitch of stays 10.56"

Pitch across wide water spaces 14" Working pressures by rules 196 LBS. Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 10 3/4" x 1 1/8" Length as per rule 2-11" Distance apart 9 1/2" Number and pitch of stays in each 3 @ 8 1/4"

Working pressure by rules 218 LBS. Steam dome: description of joint to shell % of strength of joint Diameter

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules Crown plates: Thickness How stayed



SUPERHEATER. Type *SCHMITS* Date of Approval of Plan *GENERAL 8. 28/11/21.* Tested by Hydraulic Pressure to *570 lbs.*

Date of Test. 3/10/21.

Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *YES*

Diameter of Safety Valve 2" DIA.

Pressure to which each is adjusted 210 lbs. ALL WASPERS  $\frac{3}{8}$ " Is Easing Gear fitted YES

IS A DONKEY BOILER FITTED? No

If so, is a report now forwarded? .....

SPARE GEAR. State the articles supplied: (TURBINES) 1 set 4 halves HP Bearing bushes do for MD & LP 4 each HP, MD & LP  
adjusting block pads, 4 each HP MD & LP disjuncting block liners, 6 bolts & nuts or studs & nuts for turbine bearings, 12 do  
for main joint, 1 complete set of lat. & packing for each gland. 2 no. fitted of carbon gland rings & springs 8 do  
for each flexible coupling fitted, one escape valve for each size fitted, 1 low reaction flange & packing piece for  
each expansion of HP and casing & rotor 1 & row do for MD & LP and 1 & row do for LP section & set of impulse blades  
& packing piece for HP ahead casing & rotor & set do for HP & LP astern do. Also several blade stop timing wire & 5 bolts.  
BEARINGS. One each (2 halves) bush for the following: Ford & Astern pinion MD & LP do. Fore Port & Star end reduction pinion  
aft do. Ford & Astern main wheel. 1 HP pinion 1st reduction, 1 LP pinion 1st reduction, 2 bolts & nuts a studs & nuts for  
pinion, intermediate & main wheel bearings, 8 bolts & nuts a studs & nuts for main joint. FORCED LUBRICATION SYSTEM.  
one half set valves & seats & piston rings for one pump. 10 tubes & glands for coils. 2 thermometers. THRUST BLOCK. 1 set of bush & 1 set of  
astern pads. 1 set coupling bolts & nuts for main shafting. 116 condenser fanrings 58 tubes 116 packings, 1 main feed & 1 double  
feed check valves. 8 boiler tubes & 6 steam tubes. 1 water valve spring, 2 pistons, two bucket rings, 1 motion & 1 miscell. valve  
for the following pumps: Ballast, Sanitary, Harbour feed General Service, Fresh Water Bridge Deck & Air pumps, one lubricating  
oil pump complete. A quantity of assorted bolts studs & nuts & iron of various sizes. 1 spare tail end shaft.

The foregoing is a correct description,

SHIPPING & ENGINEERING CO. LIMITED

*Manufacturer.*

ASSISTANT MANAGER

<i>Dates of Survey while building</i>	<i>{</i>	<i>During progress of</i>	<i>)</i>
		<i>work in shops - -</i>	<i>)</i>
		<i>During erection on</i>	<i>)</i>
		<i>board vessel - - -</i>	<i>)</i>
		<i>Total No. of visits</i>	<i>)</i>

april 26/1920 to Mar. 1/1922

Is the approved plan of main boiler forwarded herewith YES

Dates of Examination of principal parts—Casings <sup>2/6/21</sup> 14/6/20 & 28/9/21 Rotors <sup>9/6/21</sup> 30/4/20 & 21/3/21 Blading 11/1/22 Gearing 28/4/21 & 2/12/21

Rotor shaft <sup>21/3/21</sup> 2/6/21 Thrust shaft <sup>28/11/21</sup> 28/11/21 Tunnel shafts <sup>13/1/22</sup> 13/1/22 Screw shaft <sup>21/3/21</sup> 21/3/21 Propeller <sup>28/11/21</sup> 28/11/21  
 DRY DOCK. 2/2/22.

Stern tube 24/5/21 SHOP. Steam pipes tested 21/10/21, to Engine and boiler seatings 17/1/22 & 27/2/22. Engines holding down bolts 17/4/22.

Completion of pumping arrangements 21/2/22

Boilers fixed 17/2/22.

Engines tried under steam 21/2/22.

Main boiler safety valves adjusted 17/2/22

Thickness of adjusting wash

۱۰۸۵  
۱۰۸۶  
۱۰۸۷  
۱۰۸۸  
۱۰۸۹  
۱۰۹۰

Material and tensile strength of Rotor shaft *SIEMENS MARTIN NICKEL STEEL 38 & 33.8 TONS IN* Identification Mark on Do. *2566*

Material and tensile strength of Pinion shaft <sup>STEEL</sup> SIEMENS MARTIN NICKEL HP 44-4 MP 44-8 SEE LIST ATTACHED Identification Mark on Do. 2566

Material of Wheel shaft *W.Steel*. Identification Mark on Do. *5174 EEB* Material of Thrust shaft *W.Steel*. Identification Mark on Do. *5174 EEB*

Material of Tunnel shafts *W. Steel.* Identification Marks on Do. *5174 EEB.* Material of Screw shafts *W. Steel.* Identification Marks on Do. *5174 EEB.*

Material of Steam Pipes **SOLID DRAWN STEEL**

Test pressure 570 lbs

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 Section 49 of the Rules been complied with ☒

Is this machinery a duplicate of a previous case No If so, state name of vessel ✓

General Remarks (State quality of workmanship, opinions as to class, &c. The engines & boilers of this vessel have been built under special survey, and the materials & workmanship are good. On completion they were examined while running full power trials at sea and found satisfactory.

The machinery throughout is now in good & efficient condition & eligible in my opinion to have the record ~~of~~ LMC-3-22 marked in Red in the Society's Register Book.

It is submitted that  
this vessel is eligible for

THE RECORD.  $\pm$  L. M. C. - 3.22. F.D. C.L. 1230 N.H.P.  
2 steam turbines geared to one screw shaft. [unclear] L.

When applied for

The amount of Entry Fee	...	£	6-0-0	When applied for,
Special	...	£	120-17-0	7/3/22
Donkey Boiler Fee	...	£	9-18-	When received,
Travelling Expenses (if any)	£	:	:	24/3/22

*Engineer Surveyor to Lloyd's Register of Shipping.*

Committee's Minute

Assigned

+ Lmcl. 3. 22

72. C. L.

Lloyd's Register  
Foundation