Rpt. 4.

REPORT ON MACHINERY.

No. 15,724.

Received at London Office WED. MAR. 10. 1920

Date of writing Report March 5th 1920 When handed in at Local Office March 6th 1920 Port of Leith

No. in Reg. Book. Survey held at Kirkcaldy Date, First Survey April 4th/19 Last Survey Feb 24th/ - 1920 (Number of Visits 39)

on the S.S. "Sunfield" Tons Gross / Net

Master Built at Burntisland By whom built Burntisland S.B. Co. Ltd When built 1920

Engines made at Kirkcaldy By whom made Messrs Douglas & Grant (3563) when made 1920

Boilers made at Paisley By whom made Messrs Craig & Co. Ltd when made 1919

Registered Horse Power Owners Sun Shipping Co. Ltd Port belonging to London

Nom. Horse Power as per Section 28 433 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple Inverted No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 25", 41", 68" Length of Stroke 45" Revs. per minute 80 Dia. of Screw shaft as per rule 13.5 as fitted 14.5 Material of screw shaft S

Is the screw shaft fitted with a continuous liner the whole length of the stern tube Yes Is the after end of the liner made water tight in the propeller boss Yes If the liner is in more than one length are the joints burned — 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 — Length of stern bush 60"

Dia. of Tunnel shaft as per rule 12.4 as fitted 12.6 Dia. of Crank shaft journals as per rule 13 as fitted 13.25 Dia. of Crank pin 13.25 Size of Crank webs 48½ × 24½ × 8 3/16 Dia. of thrust shaft under collars 13.25 Dia. of screw 16'-0" Pitch of Screw 16'-3" No. of Blades 4 State whether moveable No Total surface 80 sq ft

No. of Feed pumps 2 Halls Diameter of ditto 10 × 7 × 21" Stroke Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 3" Stroke 24" Can one be overhauled while the other is at work Yes

No. of Donkey Engines 2 Sizes of Pumps Wallace 10.5 × 12.5 × 21 Glenfield 9.5 × 7 × 18 No. and size of Suctions connected to both Bilge and Donkey pumps

In Engine Room Two 3" Stokehold Two 3" In Holds, &c. Two 3" at each hold. One 3" Tunnel Well

No. of Bilge Injections 1 sizes 11" Connected to condenser, or to circulating pump Pump Is a separate Donkey Suction fitted in Engine room & size Yes 3½

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible None

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 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 are carried through the bunkers None 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

Dates of examination of completion of fitting of Sea Connections 21-11-19 of Stern Tube 14-11-19 Screw shaft and Propeller 16-12-19

Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper platform of E. Room

BOILERS, &c.—(Letter for record S) Manufacturers of Steel

Total Heating Surface of Boilers 6420 sq ft Is Forced Draft fitted Yes No. and Description of Boilers 3 Single Ended Marine (3 S.B.)

Working Pressure 180 lbs Tested by hydraulic pressure to Date of test No. of Certificate

Can each boiler be worked separately Yes Area of fire grate in each boiler 51.7 sq ft No. and Description of Safety Valves to each boiler 2 direct Spring Area of each valve 8.29 Pressure to which they are adjusted 185 lbs Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork No side bunkers Mean dia. of boilers Length Material of shell plates

Thickness Range of tensile strength Are the shell plates welded or flanged Descrip. of riveting: cir. seams

long. seams Diameter of rivet holes in long. seams Pitch of rivets Lap of plates or width of butt straps

Percentages of strength of longitudinal joint rivets plate Working pressure of shell by rules Size of manhole in shell

Size of compensating ring No. and Description of Furnaces in each boiler Material Outside diameter

Length of plain part top bottom Thickness of plates crown bottom Description of longitudinal joint No. of strengthening rings

Working pressure of furnace by the rules Combustion chamber plates: Material Thickness: Sides Back Top Bottom

Pitch of stays to ditto: Sides Back Top If stays are fitted with nuts or riveted heads Working pressure by rules

Material of stays Diameter at smallest part Area supported by each stay Working pressure by rules End plates in steam space:

Material Thickness Pitch of stays How are stays secured Working pressure by rules Material of stays

Diameter at smallest part Area supported by each stay Working pressure by rules Material of Front plates at bottom

Thickness Material of Lower back plate Thickness Greatest pitch of stays Working pressure of plate by rules

Diameter of tubes Pitch of tubes Material of tube plates Thickness: Front Back Mean pitch of stays

Pitch across wide water spaces Working pressures by rules Girders to Chamber tops: Material Depth and thickness of girder at centre Length as per rule Distance apart Number and pitch of stays in each

Working pressure by rules Superheater or Steam chest; how connected to boiler Can the superheater be shut off and the boiler worked separately Diameter Length Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes Pitch of rivets Working pressure of shell by rules Diameter of flue Material of flue plates Thickness

If stiffened with rings Distance between rings Working pressure by rules End plates: Thickness How stayed

Working pressure of end plates Area of safety valves to superheater Are they fitted with easing gear

(diagonal annotation across boiler section: See Gls. Rt. 29014)

009827-009838-0115

VERTICAL DONKEY BOILER— Manufacturers of Steel

No. Description

Made at By whom made When made Where fixed

Working pressure tested by hydraulic pressure to Date of test No. of Certificate Fire grate area Description of Safety Valves No. of Safety Valves Area of each Pressure to which they are adjusted Date of adjustment

If fitted with casing gear If steam from main boilers can enter the donkey boiler Dia. of donkey boiler Length

Material of shell plates Thickness Range of tensile strength Descrip. of riveting long. seams

Dia. of rivet holes Whether punched or drilled Pitch of rivets Lap of plating Per centage of strength of joint Rivets Plates

Working pressure of shell by rules Thickness of shell crown plates Radius of do. No. of stays to do. Dia. of stays

Diameter of furnace Top Bottom Length of furnace Thickness of furnace plates Description of joint

Working pressure of furnace by rules Thickness of furnace crown plates Radius of do. Stayed by

Diameter of uptake Thickness of uptake plates Thickness of water tubes Dates of survey

SPARE GEAR. State the articles supplied :— Two connecting rod top end bolts & nuts. Two connecting rod bottom end bolts & nuts. Two main bearing bolts & nuts. One set of coupling bolts & nuts. One set of feed & bilge pump valves. A quantity of assorted bolts & nuts. Iron of various sizes

The foregoing is a correct description,

For DOUGLAS & GRANT, Ltd. [signature] Director.

Manufacturer.

Dates of Survey while building — During progress of work in shops: 1919 April 4.15. May 6.13 June 6-20 July 11. Aug 4.22 Sept 12.23 Oct 9.14.22 Nov 4.7.11. 21.25.28. Dec 2.5.6.13.17.21 1920 Jan 16.20.23.27.30 Feb 3.6.10.20.23.26.27.

During erection on board vessel

Total No. of visits 39

Is the approved plan of main boiler forwarded herewith no

" " " donkey " " " no

Dates of Examination of principal parts—Cylinders 4-11-19 Slides 14-10-19 Covers 11-11-19 Pistons 7-11-19 Rods 4-11-19

Connecting rods 23-9-19 Crank shaft 22-10-19 Thrust shaft 11-7-19 Tunnel shafts 13-12-19 Screw shaft 7-11-19 Propeller 16-1-20

Stern tube 9-10-19 Steam pipes tested Steam pipes tested at Glasgow Engine and boiler seatings 21 11-19 Engines holding down bolts 26-2-20

Completion of pumping arrangements 3-2-20 Boilers fixed 22-1-20 Engines tried under steam 26-2-20

Main boiler safety valves adjusted 23-2-20 Thickness of adjusting washers Port P + S 5/16 Centre P 1/4 S 5/16 Stbd P 5/16 S 1/4

Material of Crank shaft S Identification Mark on Do. 2283 A.F Material of Thrust shaft S Identification Mark on Do. 2283 A.F

Material of Tunnel shafts S Identification Marks on Do. 2283 A.F Material of Screw shafts S Identification Marks on Do. 2283 A.F

Material of Steam Pipes Steel Test pressure

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery of this vessel has been built under Special Survey. The materials & workmanship are good, & in my opinion the vessel is eligible for record of + L.M.C 2-20. Elect light

The machinery has been efficiently fitted on board.

It is submitted that this vessel is eligible for THE RECORD +L.M.C. 2.20. F.D.

JWD. [initials] 10/3/20

[initials]

(Certificate (if required) to be sent to

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

[initials] 19/3/20

		When applied for.
The amount of Entry Fee Eng Fee + Installation	£ 33 : 9 : 9	19/3/20 ... pd. 29/3/20 RBN
Special	£ XX : X : X	When received.
Donkey Boiler Fee Chargeable ...	£ 11 : 17 : 11	7.4.9 pd. 29/3/20 RBN
Travelling Expenses (if any) Expenses £6.10.0	£	22.... 25/4/20 RBN

L. R. Williamson

Engineer Surveyor to Lloyd's Register of British & Foreign Shipping

FRI. MAR 26 1920

FRI. 12 MAR 1920

Committee's Minute

Assigned +L.M.C 2.20 F.D

MACHINERY CERTIFICATE WRITTEN