

REPORT ON OIL ENGINE MACHINERY.

No. 28772

Date of writing Report

19

When handed in at Local Office

18th Mar 1924 Port of

Received at London Office

SUNDERLAND.

MON. 24 MAR 1924

No. in Survey held at
Reg. Book.

SUNDERLAND.

Date, First Survey

21st Mar 1922

Last Survey

17th Mar 1924

Number of Visits

69

on the Single
Twin
Triple

Screw vessels

"PACIFIC SHIPPER"

Tons { Gross 6304
Net 3850

Master

Built at Sunderland

By whom built

Messrs. Dorman & Co.

Hull No. 577

When built 1924

Engines made at

Sunderland

By whom made

Messrs. Dorman & Co.

Engine No. 561

When made 1924

Donkey Boilers made at

Newcastle, Annan

By whom made

Messrs. Hawthorn Leslie & Co.

Boiler No. 5721

When made 1924

Brake Horse Power

2900

Owners

Turness, Wigham & Co. Ltd.

Port belonging to

London

Nom. Horse Power as per Rule

498

Is Refrigerating Machinery fitted for cargo purposes

YES

Is Electric Light fitted

YES

OIL ENGINES, &c.—Type of Engines Sundford opposed piston, Solid Injection 2 or 4 stroke cycle 2 Single or double acting Single

Maximum pressure in cylinders

40 atm (568 lb)

No. of cylinders

4

No. of cranks

4 three throw

Diameter of cylinders

580 mm

Length of stroke

2 x 1160 mm

Revolutions per minute

87

Means of ignition

Temp. of compression

Kind of fuel used

Crude oil

Is there a bearing between each crank

YES

Span of bearings (Page 92, Section 2, par. 7 of Rules)

1050 mm

41 3/8"

Distance between centres of main bearings

1330 mm

Is a flywheel fitted

YES

Diameter of crank shaft journals

as per Rule 400 mm

as fitted 430 mm

Diameter of crank pins

460 mm

Breadth of crank webs

as per Rule 650 mm

Thickness of ditto

as per Rule 260 mm

as fitted 260 mm

Diameter of flywheel shaft

as per Rule 400 mm

Diameter of tunnel shaft

as per Rule 400 mm

Diameter of thrust shaft

as per Rule 400 mm

as fitted 430 mm

Diameter of screw shaft

as per Rule 400 mm

Is the screw shaft fitted with a continuous liner the whole length of the stern tube

YES

If the liner is in more than one length are the joints burned

YES

Is the after end of the liner made watertight in the 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

YES

If two liners are fitted, is the shaft lapped or protected between the liners

YES

If without liners, is the shaft arranged to run in oil

YES

Type of outer gland fitted to stern tube

None

Length of stern bush

5'-10"

Diameter of propeller

17'-0"

Pitch of propeller

15'-0"

No. of blades

4

state whether moveable

No

Total surface

91 square feet

Method of reversing

Compressed air

Is a governor or other arrangement fitted to prevent racing of the engine when disengaged

YES

Thickness of cylinder liners

1" reinforced

Are the cylinders fitted with safety valves

YES

Means of lubrication

Forced

Are the exhaust pipes and silencers water cooled or lagged with non-conducting material

YES

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

Funnel

No. of cooling water pumps

2

Is the sea suction provided with an efficient strainer which can be cleared within the vessel

YES

No. of bilge pumps fitted to the main engines

None

Diameter of ditto

Stroke

Can one be overhauled while the other is at work

YES

No. of auxiliary pumps connected to the main bilge lines

3

How driven

Steam, direct acting

Sizes of pumps

40 lins per hour each

No. and sizes of suction connected to both main bilge pumps and auxiliary bilge pumps:—In engine room

2 @ 2 1/2"

2 @ 3 1/2"

and in holds, etc.

Funnel with 10 3" deep tanks 2 each @ 5"

No. of ballast pumps

1

How driven

Steam, direct act?

Sizes of pumps

300 lins per hour

Is the ballast pump fitted with a direct suction from the engine room bilges

YES

State size

9"

Is a separate auxiliary pump suction fitted in Engine Room and size

YES

3 1/2"

Are all the bilge suction pipes fitted with roses

TAIL PIPES

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 floor plates

YES

Are the discharge pipes 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 all pipes, cocks, valves and pumps in connection with the machinery 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

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

YES

No. of main air compressors

None

No. of stages

Diameters

Stroke

Driven by

No. of auxiliary air compressors

2

No. of stages

Diameters

Stroke

Driven by

Steam, 13 1/2" dia 7" stroke

No. of small auxiliary air compressors

✓

No. of stages

Diameters

Stroke

Driven by

No. of scavenging air pumps

one

Diameter

62"

Stroke

Driven by

Main Engine

Diameter of auxiliary Diesel Engine crank shafts

as per Rule

as fitted

Are the air compressors and their coolers made so as to be easy of access

YES

AIR RECEIVERS:—No of high pressure air receivers

NONE

Internal diameter

Cubic capacity of each

Material

Seamless, lap welded or riveted longitudinal joint

Range of tensile strength

Thickness

working pressure by Rules

No. of starting air receivers

2

Internal diameter

3'-6"

Total cubic capacity

220 Cub. ft.

Material

Steel

Seamless, lap welded or riveted longitudinal joint

Riv. joint

Range of tensile strength

28-32

thickness

1 1/4"

Working pressure by rules

6/10

Is each receiver, which can be isolated,

YES

fitted with a safety valve as per Rule

YES

Can the internal surfaces of the receivers be examined

YES

What means are provided for cleaning their inner surfaces

YES

Is there a drain arrangement fitted at the lowest part of each receiver

Man hole 12" x 16"

Is there a drain arrangement fitted at the lowest part of each receiver

YES

If so, is a report now forwarded? **YES**

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS	Soundness ascertained by inspection. Plain cylindrical form				
" " COVERS	None				
" " JACKETS.....	4.4.23 to 13.7.23	4 1/2	30 lbs	No 561 LLOYD TEST 30 lbs G.A.H. DATE	
" PISTON WATER PASSAGES.....	11.1.23	30 lbs	100 lbs	No. 561 LLOYD TEST 100 lbs G.A.H. 11.1.23	
MAIN COMPRESSORS—1st STAGE.....	None				
" 2nd "	—				
" 3rd "	—				
AIR RECEIVERS—STARTING	20.12.23, 27.12.23	600 lbs	800 lbs	No 572 LLOYD TEST G.A.H. 500 lbs DATE	
" INJECTION	—				
AIR PIPES	13.7.23, 27.7.23	600 lbs	1000 lbs	No 561 LLOYD TEST 1000 lbs G.A.H. DATE	
FUEL PIPES	31.5.23	8000 lbs	12000 lbs	No 561 LLOYD TEST 12000 lbs G.A.H. 12.3.24	
FUEL PUMPS	12.3.24	8000	12000 lbs	No 561 LLOYD TEST 12000 lbs G.A.H. 12.3.24	
SILENCER	Lagged with asbestos composition and open to atmosphere				
" WATER JACKET	None				
SEPARATE FUEL TANKS	31.1.24	Nil	10 lbs	No 561 LLOYD TEST 10 lbs G.A.H. 31.1.24	

SPARE GEAR: Cylinder liner, 1 main piston, 12 piston rings, 2 cent. con. rod top end bearing with bolts, 1 nut, 1 crank bottom end bearing bolts, nuts, 1 side cross head shoe, 1 main bearing studs & nuts, 1 bottom length crank shaft, 1 set of shaft comp. 9 bolts, 1 set tunnel shaft comp. bolts, 1 set wheels for cam shaft drive, 4 fuel valves, 1 liners, 1 starting valve, 1 relief valve, 1 scavenging pump delivery valve and discs, 1 scavenging pump suction valve & disc, 1 fuel pump bracket & 3 extra crams & pins, 1 propeller shaft, 1 propeller, 1 set bearings, valves, pist. rings for air compressors, 1 set spares for oil burning unit, 1 set bilge pump valves, 1 set valves for transfer pumps, assorted bolts, nuts, & screws.

WILLIAM DOXFORD & SONS, Limited.

Manufacturer.

Manager.

Dates of Survey while building	During progress of work in shops -	During erection on board vessel - -	Total No. of visits
	22/ Mar. 9. 23. Aug. 15. Sep. 26. Oct. 2. 10. 19. 24. 25. 30. Nov. 9. 20. 27. Dec. 7. 14. 20. 23/ Jan. 4. 11. 18. 24. 31. Feb. 5. 12. 19. 26. 27. Mar. 5. 12. 19. 26. 27. Apr. 2. 9. 16. 23. 30. May 2. 9. 16. 23. 30. June 6. 13. 20. 27. July 13. 20. 27. Aug. 3. 10. 17. 24. 31. Sep. 7. 14. 21. 28. Oct. 5. 12. 19. 26. 27. Nov. 2. 9. 16. 23. 30. Dec. 6. 13. 20. 27. 29. 31. 1900	Oct. 2. 15. 24. Dec. 20. 27. Jan. 8. 15. 22. 31. Feb. 4. 13. 15. 21. 25. Mar. 6. 7. 10. 13. 14. 17. Apr. 13. 20. 27. May 4. 11. 18. 25. 31. June 1. 8. 15. 22. 29. July 6. 13. 20. 27. Aug. 13. 20. 27. Sep. 13. 20. 27. Oct. 13. 20. 27. Nov. 13. 20. 27. Dec. 13. 20. 27. 1901	69

Dates of Examination of principal parts—Cylinders 31.5.23 Covers ✓ Pistons 11.1.23 Rods 11.1.23 Connecting rods 14.3.2

Crank shaft 9.7.21 Thrust shaft 14.3.23 Tunnel shafts 14.3.23 Screw shaft 15.10.23 Propeller 19.7.23 Stern tube 13.7.23 Engine seatings 15.1.23

Engines holding down bolts. 28.1.24 Completion of pumping arrangements 15.2.24 Engines tried under working conditions 6.3.24

Completion of fitting sea connections 20./2. 23 Stern tube 20./2. 23 Screw shaft and propeller 28./1. 24

Material of crank shaft Steel Identification Mark on Do. 561 AC 9.12.21 Material of thrust shaft Steel Identification Mark on Do. 561 GAH/4

Material of tunnel shafts *Hand* Identification Marks on Dr. *ST 1 GAH 14-3-23* *Hand* *7-2-44*

Is the flash point of the oil to be used over 150° F. **YES**

Is this machinery duplicate of a machine in the collection? YES. MAIN ENGINE "Kaiser's Mill"

[Faint handwritten notes at bottom of page]

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 sound and good. The main & all are

engines have been run in a satisfactory manner and have been tried under water.

continuous with subperitoneal sinuses. The membranous bands on vessel length in my opinion to be

the 12th of the month

These specimens were examined in dry dock at Tussock Smiths & Co.

... and found a discrepancy.

Please return plans for reference in dealing with sister school.

[Faint handwritten text at the bottom of the page]

Special *f 88-44 10-11-61*

Donkey Boiler Fee ... \$

Travelling Expenses (if any) £ : 32nd

RE MAR 28 1924

Committee's Minute

designated + Lamb. 3. 24

oil Int'l. Ch.

Continuation

