

RECEIVED
Rpt. 4b.
7 APR 1944

REPORT ON OIL ENGINE MACHINERY.

No 68304

Received at London Office 14 APR 1944

Date of writing Report 19 When handed in at Local Office 11. 4. 1944 Port of Glasgow
No. in Survey held at Glasgow Date, First Survey 6. 10. 1941 Last Survey 30th March 1944
Reg. Book. Number of Visits 68

on the Single screw vessel **'NASSARIUS'** Gross 8245.97
Tons Net 4768.01
Built at Belfast By whom built Harland & Wolff, Ltd Yard No. 1195 When built 1944-3
Engines made at Glasgow By whom made Harland & Wolff, Ltd. Engine No. 8260/3 When made 1944
Donkey Boilers made at Belfast By whom made Harland & Wolff, Ltd Boiler No. 60-8659 When made 1944
Brake Horse Power 3300 Owners Anglo Saxon Petroleum Co. Ltd Port belonging to London
Nom Horse Power as per Rule 490 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes
Trade for which vessel is intended Tanker.

OIL ENGINES, &c. Type of Engines Heavy oil, airless injection 2 or 4 stroke cycle 4 Single or double acting S-A
Maximum pressure in cylinders 700 lbs. Diameter of cylinders 740 mm. Length of stroke 1500 mm. No. of cylinders 6 No. of cranks 6
Mean Indicated Pressure 120 lbs.

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 972 mm. Is there a bearing between each crank yes.
Revolutions per minute 110 Flywheel dia. 2489 mm. Weight 2590 Kgs. Means of ignition Compression Kind of fuel used Diesel oil
Crank Shaft, Solid forged dia. of journals as per Rule Appd. 505 mm. Crank pin dia. 505 mm. Crank Webs Mid. length breadth 980 mm. Thickness parallel to axis 310 mm.
Semi built dia. of journals as fitted 505 mm. BORED 230 " shrunk Mid. length thickness 310 " Thickness around eyehole 292.5 "
All built BORED 115 "

Flywheel Shaft, diameter as per Rule Intermediate Shafts, diameter as per Rule As approved Thrust Shaft, diameter at collars as per Rule Appd. 454 mm.
as fitted fitted 17" as fitted 454 mm.
Tube Shaft, diameter as per Rule Screw Shaft, diameter as per Rule As approved Is the tube shaft fitted with a continuous liner yes
as fitted as fitted 16" screw

Bronze Liners, thickness in way of bushes as per Rule as approved Thickness between bushes as per Rule as approved Is the after end of the liner made watertight in the
as fitted 13 1/16 as fitted 21 3/32 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
shaft no If so, state type yes Length of Bearing in Stern Bush next to and supporting propeller 5'-0"

Propeller, dia. 15'-6" Pitch 12'-0" No. of blades 4 Material Bronze whether Moveable no Total Developed Surface 75 sq. feet
Method of reversing Engines Direct Is a governor or other arrangement fitted to prevent racing of the engine when disengaged yes Means of lubrication
forced Thickness of cylinder liners 53 to 41 mm. Are the cylinders fitted with safety valves yes Are the exhaust pipes and silencers water cooled or lagged with
non-conducting material lagged If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine yes

Cooling Water Pumps, No. 2 Fresh water. Is the sea suction provided with an efficient strainer which can be cleared within the vessel yes
2 salt water.
Bilge Pumps worked from the Main Engines, No. 2 Diameter 2 Stroke 2 Can one be overhauled while the other is at work yes

Pumps connected to the Main Bilge Line { No. and Size 2 Bilge & Sanitary Pumps General Service Pump 27 tons per hour.
How driven each 80 tons per hour. Steam. Steam.
Is the cooling water led to the bilges no If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping
arrangements yes

Ballast Pumps, No. and size 1 Engine driven 100 tons/hour
1 Steam 100 tons/hour
Are two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
Pumps, No. and size:—In Machinery Spaces Port & Starb 3 1/2", aft 3 1/2", Cofferdam, 1 at 2 1/2". In Pump Room yes
In Holds, &c. yes

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 3 at 6" dia; O.F. transfer pump suction from Gutterways,
2 at 2 1/2"
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces
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 platform 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

What pipes pass through the bunkers yes How are they protected yes
What 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 yes Is it fitted with a watertight door no worked from no
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork yes

Main Air Compressors, No. 1 No. of stages 2 Diameters 280 + 245 mm. Stroke 130 mm. Driven by Steam engine.
Auxiliary Air Compressors, No. 2 No. of stages 2 Diameters 3 1/2" + 8" Stroke 6" Driven by Diesel engine
Small Auxiliary Air Compressors, No. 1 No. of stages 1 Diameters 1 1/2" Stroke 6" Driven by Steam engine

What provision is made for first Charging the Air Receivers Steam driven compressor.
Scavenging Air Pumps, No. 1 Diameter 1 1/2" Stroke 6" Driven by Steam engine
Auxiliary Engines crank shafts, diameter as per Rule As approved. No. One
as fitted Journals 4 3/16", Pins 3 1/4" Position Engine room Starb. side Ford.

Have the Auxiliary Engines been constructed under special survey yes Is a report sent herewith Nottingham Cert. No. C.2207.
4 JCSA, 4cc, 5 3/8 - 8 driven 1.30 kW. dynamo & a compressor
through a clutch

AIR RECEIVERS: — Have they been made under survey... *yes* ✓ State No. of Report or Certificate *2-1083* ✓
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule... *yes* ✓
 Can the internal surfaces of the receivers be examined and cleaned... *yes* ✓ Is a drain fitted at the lowest part of each receiver... *yes* ✓
Injection Air Receivers, No. *2* ✓ Cubic capacity of each *900 Cu. ft.* Internal diameter *6'-0 5/16"* thickness *1"*
 Seamless, lap welded or riveted longitudinal joint *Riveted* ✓ Material *Steel* Range of tensile strength *28/32 tons* Working pressure *356 lb per sq. in.*
Starting Air Receivers, No. *2* ✓ Total cubic capacity *900 Cu. ft.* Internal diameter *6'-0 5/16"* thickness *1"*
 Seamless, lap welded or riveted longitudinal joint *Riveted* ✓ Material *Steel* Range of tensile strength *28/32 tons* Working pressure *356 lb per sq. in.*

IS A DONKEY BOILER FITTED? *yes (2)* ✓ If so, is a report now forwarded? *yes. Belfast Rpt. No. 13662*
 Is the donkey boiler intended to be used for domestic purposes only... *no* ✓
PLANS. Are approved plans forwarded herewith for Shafting *Crank + thrust shafts 23-4-41* Receivers *26-5-41* Separate Fuel Tanks *yes*
 (If not, state date of approval) *25-1-43*
 Donkey Boilers *26-5-41* General Pumping Arrangements *yes* Pumping Arrangements in Machinery Space *yes*
 Oil Fuel Burning Arrangements *yes*
SPARE GEAR.
 Has the spare gear required by the Rules been supplied... *yes* ✓
 State the principal additional spare gear supplied *as per enclosed list.*

*Satisfactory tomograph records were approved
 See Lon. letter in E. file 21.4.44.*

The foregoing is a correct description.
Wm. J. Wright Manufacturer.

Dates of Survey while building	During progress of work in shops--	<i>1941 Oct 6 Dec 30 1942 Mar 10 Apr 22 May 1 Jul 16 Aug 14 Sep 17 Dec 30 1943 Feb 25 Mar 12 Jul 19 23 29 Aug 17-27 Sep 15 Oct 13 15-18 19 21-2</i>
	During erection on board vessel---	<i>Nov 1. 2. 3. 4. 5. 18. 23. 24 25. 26 Dec 3. 13. 16. 30 1944 Jan 6. 11. 12. 19. 20. 21. 27 Feb 1. 4. 11. 23. 27. 28 Mar 1. 2. 6. 7. 8. 9. 10. 13. 14. 15. 16. 17. 19. 22. 23. 27. 29. 30</i>
	Total No. of visits	<i>68</i>
Dates of Examination of principal parts—Cylinders		<i>15-10-43 5-11-43</i>
Covers		<i>15-10-43 5-11-43</i>
Pistons		<i>22-10-43 5-11-43</i>
Rods		<i>22-11-43 5-11-43</i>
Connecting rods		<i>18-11-43</i>
Crank shaft		<i>30-12-42</i>
Flywheel shaft		<i>Belfast</i>
Thrust shaft		<i>30-12-42 Belfast</i>
Intermediate shafts		<i>26-11-43</i>
Tube shaft		<i>✓</i>
Screw shaft		<i>25-11-43 Belfast</i>
Propeller		<i>10-11-43 Belfast</i>
Stern tube		<i>7-12-43</i>
Engine seatings		<i>6-1-44</i>
Engines holding down bolts		<i>28-2-44</i>
Completion of fitting sea connections		<i>11-12-43 Belfast</i>
Completion of pumping arrangements		<i>29-3-44</i>
Engines tried under working conditions		<i>30-3-44</i>
Crank shaft, Material		<i>Steel</i>
Identification Mark		<i>Lloyd's 8460/3 P4</i>
Flywheel shaft, Material		<i>✓</i>
Identification Mark		<i>✓</i>
Thrust shaft, Material		<i>Steel</i>
Identification Mark		<i>Lloyd's S. 4557 P4</i>
Intermediate shafts, Material		<i>Steel</i>
Identification Marks		<i>Lloyd's S. 6932 P4</i>
Tube shaft, Material		<i>✓</i>
Identification Mark		<i>✓</i>
Screw shaft, Material		<i>Steel</i>
Identification Mark		<i>Lloyd's S. 7667 P. 4</i>
Identification Marks on Air Receivers		<i>See Belfast Report No. 13662.</i>

Steam pipes 2" dia, S.D.O.H steel. All other sizes S.D. Bessemer steel tubes taken from H9 W stock. Flanges marked accordingly.

Is the flash point of the oil to be used over 150° F. *yes* ✓
 Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with *yes* ✓
 Description of fire extinguishing apparatus fitted *Perforated steam pipes under boilers. Portable extinguishers as per B.O.T & Merchant Shipping Regulations.*
 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 *M.V. 'NORRISIA'. Glasgow Rpt. No. 68202*

General Remarks (State quality of workmanship, opinions as to class, &c.)
*The machinery of this vessel has been constructed under Special Survey and in accordance with the approved plans, the Rules of this Society, and the Ministry of War Transport Specification for the main engines. The materials and workmanship are good.
 The machinery has been efficiently secured in position on board the vessel, and afterwards tried under full working conditions with satisfactory results.
 The machinery is eligible in my opinion to be classed in the Register Book with notation of + LMC 3.44 C.L. + 2DB. WP 150 lb.
 See also Belfast Report No. 13662*

Certificate (if required) to be sent to Glasgow (The Surveyors are requested not to write on or below the space for Committee's Minute.)

The amount of Entry Fee	£ 5 : 0	When applied for,	12 APR 1944
Special Specification - Main engines	£ 98 : 10	When received,	
Donkey Boiler Fee	£ 16 : 8		
Travelling Expenses (if any)	£ : :		

P. Fitzgerald & G. E. Murdoch
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute
 Assigned *-1- LMC 3.44 Air Eng. 2 NB 150 lb.*

