

REPORT ON OIL ENGINE MACHINERY.

No. 6134

Comp. 30th Aug. 1950 When handed in at Local Office 30th Aug. 1950 Received at London Office.

o. in Survey held at Halifax, N. S. Port of Halifax, N. S. 16 SEP 1950

5692 on the Twin Screw vessel "BAHIA THETIS" Date, First Survey 22nd July, 1948 Last Survey 10th August, 1950

uilt at Halifax, N. S. By whom built Halifax Shipyards, Limited. Tons { Gross 3830.75 Net 2100.49

Engines made at Milwaukee, Wis. By whom made Nordberg Manufacturing Co. Yard No. 18 Completed 1950

Monkey Boilers made at St. Catharines, Ont. By whom made Foster Wheeler, Ltd. Engine No. TSM-2155 When built 1950

ake Horse Power Service 1875 each engine Owners Argentine Government Boiler No. WH 1330 When made 1948

ade for which Vessel is intended Ocean-going, Cargo-Passenger Service. Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

IL ENGINES, &c. Type of Engines Heavy Oil, Solid Injection (Particulars also entered from Clv. Rpt. 4b - No. 1372, Photostat copy of same returned herewith).

imum pressure in cylinders 800 p.s.i. 2 or 4 stroke cycle 2 Single or double acting Single

an Indicated Pressure 88 p.s.i. Diameter of cylinders 21.5" Length of stroke 29" No. of cylinders 5 x 2 No. of cranks 5 plus 1 Scav. x 2.

an of bearings, adjacent to the Crank, measured from inner edge to inner edge 26.25" with fillets

olutions per minute 225 Flywheel dia. 76" Weight 9700 lbs. Is there a bearing between each crank Yes.

ank Shaft, { Solid forged as per Rule - Means of ignition Compression Kind of fuel used Diesel oil.

Shaft, { dia. of journals as fitted 14.75" Crank pin dia. 14.75" Crank Webs Mid length breadth 19.125" Thickness parallel to axis -

Flywheel Shaft, diameter as per Rule - Intermediate Shafts, diameter as per Rule As appd. Mid length thickness 6.875" Thickness around eyehole -

Shaft, diameter as per Rule - Screw Shaft, diameter as per Rule As appd. Thrust Shaft, diameter at collars as fitted 9.625" Thickness around eyehole -

onze Liners, thickness in way of bushes as per Rule As appd. Is the { screw } shaft fitted with a continuous liner Yes

opeller boss Yes (Rubber ring) Is the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner -

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 -

two liners are fitted, is the shaft lapped or protected between the liners Coated with Apexor (As per Appd. plan) Is an approved Oil Gland or other appliance fitted at the after end of the tube

ft No If so, state type - Length of Bearing in Stern Bush next to and supporting propeller 3'-5-7/8"

opellers dia. 10'-0" Pitch 7.28' No. of blades 3 Material Bronze whether Moveable No Total Developed Surface 30.625 sq. feet

ethod of reversing Engines Rotating Camshaft Is a governor or other arrangement fitted to prevent racing of the engine Yes Means of lubrication

Pressure Thickness of cylinder liners 0.875" Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled or lagged with

n-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 -

oling Water Pumps, No. S.W. 2-430 USG/M (ED) F.W. 3-430 USG/M (ED) Is the sea suction provided with an efficient strainer which can be cleared within the vessel Yes

lge Pumps worked from the Main Engines, No. None Diameter - Stroke - Can one be overhauled while the other is at work -

umps connected to the Main Bilge Line { No. and Size Three (1-95 tons/hr; 1-75 tons/hr; 1 Emergency - 60 tons/hr.) How driven D.C. Electric Motors.

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

angements

illast Pumps, No. and size 1-95 tons/hr. (ED) Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 3-275 USG/M (ED)

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

mps, No. and size: In Machinery Spaces 4-3" & 2-2" in E.R., 1-2" in tunnel well; 1-2" in sludge tank In Pump Room 1-2"

Holds, &c. 2-3" in each hold; 1-2" in magazine.

dependent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 3 off - 4" diar.

all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes Are the Bilge Suctions in the Machinery Spaces

l from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges yes

all Sea Connections fitted direct on the skin of the ship (1P & 1S) Are they fitted with Valves or Cocks Valves

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 Above

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

hat pipes pass through the bunkers. None How are they protected -

hat pipes pass through the deep tanks. None Have they been tested as per Rule -

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

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

compartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes Stbd. alleyway on upper dk. worked from near E.R. entrance.

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

in Air Compressors, No. None No. of Stages - Diameters - Stroke - Driven by -

uxiliary Air Compressors, No. Two No. of stages 2 Diameters 2 1/2" & 5" Stroke 3 1/2" Driven by 2-cyl. Hvy. Oil Eng.

2, 12, 13 Small Auxiliary Air Compressors, No. None No. of stages - Diameters - Stroke - Driven by -

hat provision is made for first Charging the Air Receivers Manual starting of auxiliary air compressor engines.

ne Leavening Air Pumps, No. 2 (1 each engine) Diameter 53.5" Stroke 16.5" Driven by Main engine.

v. 17 Auxiliary Engines crank shafts, diameter as per Rule as approved. No. 6 Auxy. engines: 2-192 KW. Gen. Eng. in E.R. (p.s.s.) 1-106 KW. Gen. Eng. in E.R. (p.s.s.) 1 Em. Gen. Eng. in house on

78 Have the Auxiliary Engines been constructed under special survey Yes. Position Boat dk.; 2-Aux. Comp. Eng. in E.R. (p. & s.s.) Is a report sent herewith Yes.

e Clv. Rpt. 4c- No. 1365, Sheets 1 & 2, Bal. Rpt. 4b- NO. 8941, Mch. Rpt. 4c No. 13461; also Hfx. Rpts. 4c Nos. 6134a, b, c & d.

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AIR RECEIVERS:—Have they been made under survey. Yes ✓ State No. of Report or Certificate Mtl. Nos. 5823, 5817, 5914, and 5915
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 ✓
Whistle Air Receivers, No. One ✓ Cubic capacity of each 15 c. ft. Internal diameter 23 1/4" thickness 3/8" (Heads 7/16")
(No Injection Air Receivers) Fusion Welded Material O.H. Steel Range of tensile strength 26-30 tons Working pressure by Rules As appd. Actual 250 lbs.
Seamless, lap welded or riveted longitudinal joint. (2-390 lbs. W.P.)
Starting Air Receivers, No. 3 (1-250 " " Total cubic capacity 225 c. ft. Internal diameter 36 1/2" thickness 2 @ 3/4"; 1 @ 1/2"
Seamless, lap welded or riveted longitudinal joint. Fusion Welded Material O.H. Steel Range of tensile strength 26-30 tons Working pressure by Rules As appd. Actual 2-390 & 1-
IS A DONKEY BOILER FITTED? Yes (2 W.T.) 1 - oil fired 1 - waste heat so, is a report now forwarded? Yes (See Tto. Rpts. 5c Nos. 1329 & 1330; also Hfx. Rpts. 4c No. 6134,
Is the donkey boiler intended to be used for domestic purposes only. Yes ✓
PLANS. Are approved plans forwarded herewith for Shafting. Yes ✓ Receivers Others-No. Mtl. 21-10-48 Separate Fuel Tanks. None
(If not, state date of approval)
Donkey Boilers. Yes ✓ General Pumping Arrangements. Yes ✓ Pumping Arrangements in Machinery Space. Yes ✓
Filling, Transfer & Service Oil Fuel Arrangements. Yes ✓

SPARE GEAR.

Has the spare gear required by the Rules been supplied. Yes ✓
State the principal additional spare gear supplied. Please see list forwarded herewith.

The foregoing is a correct description

HALEF SHIPYARDS, LTD.
General Manager. Manufacturer. Shipbuilders.
(Particulars also entered from Cleveland Rpt. 4b - No. 1372)
Dates of Survey while building: During progress of work in shops - 1948 July 22, Nov. 1, 4, 9, 24, 29, Dec. 1, 7, 17, 18; 1949 Jan. 7; Feb. 25; Mar. 21; May 11, 26; 23, 28; July 4, 12; Aug. 18; Sept. 13; Oct. 21, 27, 28; Nov. 1, 2, 7, 15, 16, 17; Dec. 20; 1950 Feb. 2, 10; 23; Apl. 28, 29; May 11, 12, 15, 16, 17, 18, 22, 26, 29, 30; June 1, 16, 22; July 12, 14, 19, 26; Aug. 10.
Total No. of visits 8 plus 56 = 64
Dates of Examination of principal parts—Cylinders 19-5-49 19-5-49 25-5-49 19-5-49
Crank shaft 22-6-49 Flywheel shaft. None Thrust shaft 19-5-49 28-6-49 Pistons 28-6-49 Rods - Connecting rods 21-6-49
Screw shaft P&S 4-7-49 Propeller P&S 4-7-49 Stern tube S 12-7-49 Engine seatings 12-7-49 Engines holding down bolts 22-3-50
Completion of fitting sea connections 13-9-49 Completion of pumping arrangements 16-5-50 Engines tried under working conditions 22-6-50
Crank shaft, Material O.H. Forg. Steel Identification Mark LLOYDS 5863 Flywheel shaft, Material None Identification Mark -
Thrust shaft, Material O.H. Forg. Steel Identification Mark LLOYDS 5884 (LLOYDS A380, A374, A370, A350, A378, A382, A375, A379, Identification Marks A339 & A36
Tube shaft, Material None Identification Mark - Screw shaft, Material O.H. Forg. Steel Identification Mark P-LLOYDS A3 S-LLOYDS A3
Identification Marks on Air Receivers Whistle Air Receiver, No. 5623, LLOYD'S TEST 500 lbs. W.P. 250 lbs. W.N. 12-5-48
Starting Air Receivers: No. 5817, LLOYD'S TEST 635 lbs. W.P. 390 lbs. 23-9-48 W.N. & D.J.A.; No. 5914, LLOYD'S TEST 635 lbs. W.P. 390 lbs. 28-9-48 W.N. & D.J.A.; No. 5916, LLOYD'S TEST 425 lbs. W.P. 250 lbs. 28-9-48 W.N. & D.J.A.
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 ✓
Is the vessel (not being an oil tanker) fitted for carrying oil as cargo. No ✓ 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. Not desired.
Is this machinery duplicate of a previous case. Yes ✓ If so, state name of vessel M.V. "BAHIA AGUIRRE" Hfx. Rpt. 4b-No. 6 M.V. "BAHIA BUEN SUCESO" Hfx. Rpt. 4b-
General Remarks (State quality of workmanship, opinions as to class, &c.) The Machinery of this vessel has been built under the supervision of the Society's Surveyors, installed in the ship in accordance with, or equivalent to, the Requirements Rules, the Secretary's letters and the Approved Plans, tested under full working conditions and found in good order.
(See also Clv. Rpts. 4b- No. 1372 & 4c No. 1365, Sheets 1 & 2; Bal. Rpt. 4b- No. 8941; Mch. Rpt. 4c-No. 13461; Tto. Rpt 1329 & 1330; Hfx. Rpts. 4c - Nos. 6134, a, b, c & d & Rpts. 5c - Nos. 6134 a & b).

The torsional vibration characteristics of the shafting installation have been approved as per Lon. letter to N. records
"E", 20-1-48, torsigraph/have been taken as required from a similar installation (See Hfx. Rpt. 4b- No. 6110 M.V. "BAHIA AGUIRRE"), and approved as per Lon. letter to Mtl., "E", 21-2-50. A notice board has been fitted at the control station as required, stating (in Spanish) that the main engines are not to be operated continuously below 70 RPM, and the main engine tachometers have been marked accordingly. The workmanship and materials are good, and it is recommended for the favourable consideration of the Committee that the Machinery of this vessel is eligible, in our opinion, to be classed LMC, 8.50, TS(CL), with suitable notation to the effect that the main engines are not to be run continuously below 70 RPM.

The amount of Entry Fee Coll. at Cleveland. When applied for, Aug. 31, 1950
(See Clv. Rpt. 4b - No. 1372) Special & Auxy. Machy. £ :
Donkey Boiler/Fee ... \$ 250.00 :
Travelling Expenses (if any) \$ 35.00 :
When received, 19

Committee's Minute - Fri. 29 SEP 1950

Assigned - + LMC 8.50. Oil Eng. (with endorsement)
2 NTD 50B. C.E.

Rpt. 9a.

CONTINUATION SHEET NO. 1

Port of Halifax, N. S.

Continuation of Report No. 4b, No. 6134 dated 30th August, 1950 on the

T.S.M.V. "BAHIA THETIS" - Halifax Shipyards, Ltd., HULL NO. 18

The following Reports & Certificates, or copies of same, are forwarded herewith:

REPORTS

- (1) Clv. Rpt. 4b - No. 1372 (Photostat Copy):- Port and Stbd. Main Engines.
- (2) Hfx. Rpts. 4c - No. 6134a & 6134b, also Clv. Rpt. 4c - No. 1365, Sheets 1 & 2, and attachments:- 2 - 192 K.W. and 1 - 106 K.W. Diesel Engine Generator Sets.
- (3) Hfx. Rpt. 4c - No. 6134c & Bal. Rpt. 10:- One 20 K.W. Diesel Engine Emergency Generator Set.
(See also Bal. Rpt. 4b - No. 8941 forwarded with Hfx. Rpt. 4b - No. 6110, M/V "BAHIA AGUIRRE")
- (4) Hfx. Rpt. 4c - No. 6134d and Mch. Rpt. 4c - No. 13461 (Photostat copy):- 2 Air Compressor Sets.
- (5) Hfx. Rpt. 5c - No. 6134a & Tto. Rpt. 5c - No. 1329 & attachments:- 1 Oil Fired W.T. Donkey Boiler.
- (6) Hfx. Rpt. 5c - No. 6134b & Tto. Rpt. 5c - No. 1330 & attachments:- 1 Waste Heat W.T. Donkey Boiler.

CERTIFICATES:

- (1) Hfx. Rpt. 10:- Interim Classification Certificate (Machinery).
- (2) Mtl. Cert. A.R.:- 1 - Whistle Air Receiver, W.P. 250 lbs., LLOYDS NO. 5623.
- (3) Mtl. Cert. A.R.:- 1 - Starting Air Receiver, W.P. 390 lbs., LLOYDS NO. 5817.
- (4) Mtl. Cert. A.R.:- 1 - " " " W.P. 390 lbs., LLOYDS NO. 5914.
- (5) Mtl. Cert. A.R.:- 1 - " " " W.P. 250 lbs., LLOYDS NO. 5916.
- (6) Mtl. Rpt. 10:- 1 - Fire, Bilge & G.S. Pump, LLOYDS NO. 6010.
- (7) Mtl. Rpt. 10:- 1 - Bilge & Ballast Pump, LLOYDS NO. 6029.
- (8) Gls. Pump Cert. No. C.72455:- 1 - Emergency Bilge Pump, LLOYDS NO. 72455.
- (9) Clv. Rpt. 10, No. C-6350 & Test Sheets:- 3 - F.W. Circulating Pumps (including Stand-by Pump).
Serial Nos. 717800, 717804 & 717805.
- (10) Clv. Rpt. 10, No. C-6345 & Test Sheets:- 2 - S.W. Circulating Pumps, LLOYDS NOS. 6718 & 6720.
- (11) Mtl. Rpt. 10:- 3 - Lubricating Oil Pumps (including Stand-by Pump),
LLOYDS NOS. 6021, 6023 & 6025.
- (12) S. Fo. Rpt. 10:- 2 - F.W. Coolers, LLOYDS TEST 100-J & 100-K.
2 - Lub. Oil Coolers, LLOYDS TEST 100-L & 100-M.
- (13) Mtl. Rpt. 10:- 1 - 25 ton Evaporator, LLOYDS No. 5923.
- (14) Mtl. Rpt. 10:- 1 - 90 sq. ft. Distiller, LLOYDS No. 5925.
- (15) Clv. Rpt. 10, No. C-6268:- 1 - M.E. O.F. Transfer Pump, Serial No. J-10629.
- (16) Clv. Rpt. 10, No. C-6273:- 1 - M.E. O.F. Transfer Pump, Serial No. J-10634.
- (17) Hfx. Rpt. 10:- One Complete Ship's Set Shafting (Intermediate & Tailshafts).
- (18) Hfx. Rpt. 10, No. F4234:- 2 - C.S. Stern Tubes, LLOYDS Nos. A386 & A451.
- (19) Hfx. Rpt. 10, No. F4201:- 2 - Stern Tube Nuts, LLOYDS Nos. A444-3 & A444-4.
- (20) Nwc. Rpt. 10, No. C.28391:- One Ship's Set Tunnel Bearings, LLOYDS 20-1-49 W.H.S.

Certificates are not yet available covering the Two Bronze Propellers, made by J. Stone & Co. Ltd., London, Drg. No. Z8993, and each stamped LLOYDS N.D. 7-1-49. The Builders have requested the Makers to supply the Certificates as soon as possible, and copies of same will be forwarded as soon as received.

A copy of the Machinery Spare Gear List is also forwarded herewith.

For list of Approved Plans being forwarded under separate cover, please see Continuation Sheet No. 2, attached hereto.

Geo. Peckie
SURVEYOR TO LLOYD'S REGISTER

T.S.M.V. "BAHIA THETIS" - HALIFAX SHIPYARDS LTD., HULL NO. 18

The Approved Plans listed below, are being forwarded under separate cover:-

MACHINERY

- (1) Bilge & Ballast Piping
- (2) Shafting Arrangement.
- (3) Shafting Details.
- (4) Sterntube Details.
- (5) M.E. Holding Down Bolts & Chocks.
- (6) Location of Ship's Side Valves.
- (7) Fittings for Sea Boxes.
- (8) Addtl. Sanitary Pump Sea Inlet.
- (9) Propellers.
- (10) Heating Coils in Lub. Oil Sump Tanks.
- (11) Heating Coils in O.F. Service Tanks.
- (12) Air Starting System.
- (13) Drainage of Magazine & Tunnel.

Recess Top.

- (14) Whistle Air Piping.
- (15) Fuel Oil Service Piping.
- (16) Fuel Oil Transfer Piping.
- (17) Fuel Oil Piping, Aft Filling Line.
- (18) Bilge & Ballast Piping in E.R.
- (19) Bilge & Ballast Piping aft of E.R.
- (20) Main Engine Lubricating Oil Piping.
- (21) Auxy. Engine Lubricating Oil Piping.
- (22) Sea Inlet for Refrig. Machy. (Addition).
- (23) Donkey Boiler Piping Layout, Steam.
- (24) Donkey Boiler Piping Layout, Feed Water.
- (25) Donkey Boiler Piping Layout, Blowdowns.
- (26) Heating Steam Condensate Return.
- (27) Air Whistle Receiver.

O. F. DONKEY BOILER

- (1) General Arrangement.
- (2) Upper Drum Details.
- (3) Lower Drum Details.
- (4) Tube Template.
- (5) General Arrgt. of Terminal Points.

WASTE HEAT DONKEY BOILER

- (1) General Arrangement.
- (2) General Assembly.
- (3) Steam Drum Details.
- (4) Steam Drum Internals.
- (5) Header Details.