

## REPORT ON STEAM TURBINE MACHINERY. No. 2346

Received at London Office

29 APR 1948

of writing Report. 17th March 1948 When handed in at Local Office. 17th March 1948 Port of MOBILE, ALABAMA

Survey held at Chickasaw & Mobile, Alabama Date, First Survey 17 Sept. 1947 Last Survey 18th March 1948

Reg. Book (Number of Visits 25)

on the s.s. "SOUTH AFRICA STAR" ex HMS "Reaper" Tons { Gross 8015 Net 4635

uilt at Tacoma, Washington By whom built Seattle Tacoma Shipbldg. Corp. Yard No. 49 When built 1944

Engines made at Milwaukee, Wisc. U.S.A. By whom made Allis Chalmers Manuf. Co. Gears No. 152-400 Engine No. 10056 & 57 When made 1943

Boilers made at Carteret, New Jersey By whom made Foster Wheeler Corp. Boiler No. 1480 & 81 When made Oct. 1943

Shaft Horse Power at Full Power 8500 Owners Blue Star Line Ltd. Port belonging to London

om. Horse Power as per Rule 1488 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ade for which Vessel is intended Dry and perishable cargoes, ocean going.

## TEAM TURBINE ENGINES, &amp;c.—Description of Engines—Gross Compound Impulse, Reaction

Ahead 2 propelling shafts No. of primary pinions to each set of reduction gearing 1

of Turbines 1 double reduction geared

Volts at - revolutions per minute; -

supplying power for driving - Propelling Motors, Type -

ed. - Kilowatts - Volts at - revolutions per minute. double reduction geared to 1 propelling shafts.

TURBINE LADING.	H. P.	H. P. (Cont.)			L. P.			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.
1st EXPANSION	Imp.	1.28"	22.812"	1	1.75	20.50	1	1.75"	23.50"	2
2nd "	Rea.	0.85"	16.20"	3	1.90	20.80	1	2.10"	24.20"	2
3rd "		1.00"	16.50"	3	2.05	21.10	1	2.15"	24.30	1
4th "		1.10	16.70"	2				2.35"	24.70"	1
5th "		1.25	17.00"	2				2.55"	25.10"	1
6th "		1.30	17.10"	1				2.70"	25.72"	1
7th "		1.35	17.58"	1				3.05"	30.82"	1
8th "		1.35	18.28"	1				3.80"	33.76"	1
9th "		1.35	19.79"	1				3.90"	36.05"	1
10th "		1.35	19.30"	1				5.20"	40.40"	1
11th "		1.45	19.90"	1				6.40"	42.80"	1
12th "		1.60	20.20"	1				7.80"	45.60"	1
								9.60"	49.20"	1

Shaft Horse Power at each turbine { H.P. 4125 I.P. - L.P. 4375

Revolutions per minute, at full power, of each Turbine Shaft { H.P. 5004 I.P. - L.P. 4289

1st reduction wheel 665.3 main shaft 85

Motor Shaft diameter at journals { H.P. 6" I.P. - L.P. 8" Pitch Circle Diameter { 1st pinion 7.754" HP 9.046 LP 1st reduction wheel 58.318 2nd pinion 20.250 main wheel 158.500

Width of Face { 1st reduction wheel 20 15 1/2" main wheel 20 16-7/8"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 11-3/4" 1st reduction wheel 15 1/2" 2nd pinion 42" main wheel 27-3/4"

Flexible Pinion Shafts, diameter at bearings { 1st None 2nd None External 6" 1st None 2nd 16" 12" diameter at bottom of pinion teeth { 1st 7.326" HP 8.688" LP 2nd -

Wheel Shafts, diameter at bearings { 1st 16"-12" Int. 2nd 21"-11" Int. diameter at wheel shroud, { 1st - 2nd - Generator Shaft, diameter at bearings - Propelling Motor Shaft, diameter at bearings -

Intermediate Shafts, diameter as per rule as fitted 19" Thrust Shaft, diameter at collars as per rule as fitted Howarth Tube Shaft, diameter as per rule as fitted -

Forward on Main Wheel Shaft as fitted - Is the screw shaft fitted with a continuous liner { Yes Bronze Liners, thickness in way of bushes as per rule as fitted 1.075

Thickness between bushes as per rule as fitted 0.86" Is the after end of the liner made watertight in the propeller boss Yes If the liner is in more than one length are the junctions

by fusion through the whole thickness of the liner. - If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a stic material insoluble in water and non-corrosive. - If two liners are fitted, is the shaft lapped or protected between the liners. - Is an approved Oil Gland

other appliance fitted at the after end of the tube shaft No Length of Bearing in Stern Bush next to and supporting propeller. 7 ft.

Propeller, diameter 21'-8" Pitch 21.669 No. of Blades 4 State whether Moveable No Total Developed Surface 166.4 square feet.

Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes Can the H.P. Turbine exhaust direct to the

Condenser Yes No. of Turbines fitted with astern wheels LP Only Feed Pumps No. and size Two elect. recip. triplex 3-5/8x5, 125 g.p.m. (How driven Two steam simplex 14x9x24 11x7x24, 185 & 120 g.p.m.)

Pumps connected to the Main Bilge Line { No. and size Two elect., centrif. with priming system. 600 g.p.m. How driven One steam vert. duplex 10x12x12, 800 g.p.m.

last Pumps, No. and size Three bilge pumps Lubricating Oil Pumps, including Spare Pump, No. and size 2 Elect. centrif. 325 g.p.m. each

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 Engine and Boiler Room Two 6" Direct Two 2" Direct Three 3" Main

Holds, &c. Six 3" in Nos. 1, 3 & 4 Holds. Four 3" in FWD. Deep Tanks. Four 2 1/2" Drains from No. 5 Hold to Tunnel with self closing valves.

in Water Circulating Pump Direct Bilge Suctions, No. and size One 16" Independent Power Pump Direct Suctions to the Engine Room

yes, No. and size Two 6" Two 2" Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes or strainer plates, Yes

the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges No (Strainers at Ends)

all Sea Connections fitted direct on the skin of the ship No, Steel Spools Are they fitted with Valves or Cocks. Valves

they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Yes Are the Overboard Discharges above or below the deep water line

they each fitted with a Discharge Valve always accessible on the plating of the vessel Yes Are the Blow Off valves spool piece and no brass covering plate Yes

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

at 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 one

partment to another. Yes Is the Shaft Tunnel watertight. Yes Is it fitted with a watertight door. Yes worked from Upper Deck



BOILERS, &c.— (Letter for record.....) Total Heating Surface of Boilers..... **15424 square feet**  
Is Forced Draft fitted..... **Yes** No. and Description of Boilers..... **Two F.W. "D" Type Marine** Working Pressure..... **525 lbs.**

Is a Report on Main Boilers now forwarded?..... **Yes**  
Is { a Donkey } Boiler fitted?..... **No** If so, is a report now forwarded?.....

Plans. Are approved plans forwarded ~~for~~ for Shafting..... **Yes** Main Boilers..... **Yes** Auxiliary Boilers..... Donkey Boilers.....  
(If not state date of approval) Forwarded with Sister Ship "RIOW" Rpt. No. 2322

Plans of air pipes herewith..... **Yes** General Pumping Arrangements..... **Yes herewith** Oil Fuel Burning Arrangements..... **Yes**  
Superheaters..... **Yes**

Spare Gear. State the articles supplied:..... **Set of coupling bolts of each size, bearing bush complete for each journal of turbine and gears. Set of pads main thrust. Impeller and shaft for main circulating pump, 12 boiler tube stoppers, 1 set oil fuel burner equipment complete. Assorted studs, bolts, nuts, bars and plates. The remaining items of spare gear will be supplied at the earliest opportunity. Three "Paracoil" Evaporators by Davis Engineering Company Salt; No. 31748 July 45, 30 p.s.i. Fresh; No. 31196 June 45, 35 p.s.i. Contaminated No. 58435, Sept. 47, 55 p.s.i.**  
**Fire extinguishing appliances:- CO<sub>2</sub> system in engine room, service spaces and emergency generator room. Soda and acid and "Pyrene" bottles in engine room and service spaces. Steam smothering elsewhere. "Kilde" smoke detecting and extinguishing system. Ample fire hoses supplied.**

The foregoing is a correct description,

Dates of Survey { During progress of work in shops }  
while building { During erection on board vessel }  
Total No. of visits.....

Dates of Examination of principal parts—Casings..... **7 November 1947** Rotors..... **7 November 1947** Blading..... **7 November 1947** Gearing..... **7 Nov. 1947**

Wheel shaft..... **7 Nov. 1947** Thrust shaft..... **7 Nov. 1947** Intermediate shafts..... **7 Nov. 1947** Tube shaft..... **27 Sept. 1947** Screw shaft..... **27 Sept. 1947**

Propeller..... **11 March 1948** Stern tube..... **27 Sept. 1947** Engine and boiler seatings..... **29 Sept. 1947** Engine holding down bolts..... **29 Sept. 1947**

Completion of pumping arrangements..... **4th March 1948** Boilers fixed..... **15 March 1948** Engines tried under steam..... **15 March 1948**

Main boiler safety valves adjusted..... **4 March 1948** Thickness of adjusting washers.....

Rotor shaft, Material and tensile strength..... Identification Mark

Flexible Pinion Shaft, Material and tensile strength..... Identification Mark

Pinion shaft, Material and tensile strength..... Identification Mark

1st Reduction Wheel Shaft, Material and tensile strength..... Identification Mark

Wheel shaft, Material..... Identification Mark Thrust shaft, Material..... Identification Mark

Intermediate shafts, Material..... Identification Marks Tube shaft, Material..... Identification Marks

Screw shaft, Material..... Identification Marks Steam Pipes, Material..... **Steel** Test pressure..... **788 lbs.**

Date of test..... **7 November 1947** Is an installation fitted for burning oil fuel..... **Yes**

Is the flash point of the oil to be used over 150°F..... **Yes** Have the requirements of the Rules for the use of oil as fuel been complied with..... **Yes**

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo..... **Yes** If so, have the requirements of the Rules been complied with..... **Yes**

Is this machinery a duplicate of a previous case..... **Yes** If so, state name of vessel..... **S.S. "REMPANG"**

General Remarks (State quality of workmanship, opinions as to class, &c.)..... **The main and auxiliary machinery, built and installed under ABS survey, has now been examined throughout, the materials and workmanship, so far as can be seen, are of good quality. The machinery has been tested under full trial conditions and all found to be satisfactory and suitable, in my opinion, to be classed with the Society with the record of LMC 3,48 and TS(CL) 3,48.**

NOTE:- No gutterways fitted around settling tanks. Airpipes from adjacent fuel oil double bottom tanks are connected under the shelter deck and are smaller in area than their filling pipes. The boilers have only one feed water connection direct on the boiler drums.

The amount of Entry Fee ..... £ : When applied for, **30 March 1948**  
and Special ..... £ :  
Donkey Boiler Fee ..... £ : When received,  
Travelling Expenses (if any) **£ 5.00** : 19

Committee's Minute

Assigned **LMC-3,48**

NEW YORK APR 7 1948

Engine Surveyor to Lloyd's Register of Shipping.

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