

Rpt. 4a.

## Report on Steam Turbine Machinery.

No. 145443

Date of writing Report 5<sup>th</sup> Oct-1956 When handed in at Local Office 19 Port of Liverpool Received at London Office 17 OCT 1956  
No. in Survey held at Birkenhead Date, First Survey 14. 12. 56 Last Survey 27. 9. 1956  
Reg. Book on the Steel Screw Tanker "San Flaviano" (Number of Visits 217)  
Built at Birkenhead By whom built Baunell Laird & Co (S.E.) Ltd Yard No. 1242 When built 1956  
Engines made at Birkenhead By whom made Baunell Laird & Co (S.E.) Ltd Engine No. 1242 When made 1956  
Boilers made at Birkenhead By whom made Baunell Laird & Co (S.E.) Ltd Boiler No. 1242 When made 1956  
Shaft Horse Power at Full Power MAX 13250 SERV 7500 Owners Eagle Oil Shipping Co. Port belonging to London  
Nom. Horse Power as per Rule 1650 Is Refrigerating Machinery fitted for cargo purposes No. Is Electric Light fitted Yes.  
Trade for which Vessel is intended Ocean going

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines.

Double Reduction Geared, Impulse Reaction Turbine

No. of Turbines Ahead Two Direct coupled, single reduction geared to One propelling shafts. No. of primary pinions to each set of reduction gearing Two  
Astern Two double reduction geared  
Direct coupled to Alternating Current Generator 1 phase periods per second rated Kilowatts Volts at revolutions per minute;  
or supplying power for driving Propelling Motors, Type rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE  
LOADING.

	H. P.	I. P.	L. P.	ASTERN.
Impulse loading	No. of rows 14		5	HP 1-28 No Wheel LP 1-28 No Wheel
Reaction loading	No. of stages 1		5	1-1 low Wheel
	No. of rows in each stage 1		1	

Shaft Horse Power at each turbine H.P. 4208 3975 I.P. 85697 L.P. 3690 3533  
Revolutions per minute, at full power, of each Turbine Shaft I.P. 1200 L.P. 100  
Motor Shaft diameter at journals H.P. 5 1/2" I.P. 16" L.P. 16" Pitch Circle Diameter 1st pinion 12.716 1st reduction wheel 56.3459 2nd pinion 16.7059 main wheel 144.9514  
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 15" 1st reduction wheel 15 1/4" 2nd pinion 26" main wheel 30"

Exible Pinion 1st 7 5/8" 2nd 7 5/8" Pinion Shafts, diameter at bearings External 1st 6 1/2" 2nd 12" Internal 1st 2" 2nd 8" diameter at bottom of pinion teeth 1st 13.5658 2nd 15.8572  
Wheel Shafts, diameter at bearings 1st 8" 2nd 19" diameter at wheel shroud, main 16.38" 17.875" Generator Shaft, diameter at bearings 1st 16 1/2" 2nd 14 1/2" Propelling Motor Shaft, diameter at bearings 1st 18.88" 2nd 19.75"

Intermediate Shafts, diameter as per rule 16.38" as fitted 17.875" Thrust Shaft, diameter at collars as per rule 18.88" as fitted 19.75"  
Screw Shaft, diameter as per rule 19.75" as fitted 19.75" Is the screw shaft fitted with a continuous liner Yes.

Linings, thickness in way of bushes as per rule 29/32" as fitted 29/32" Thickness between bushes as per rule 29/32" as fitted 29/32" 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 made by fusion through the whole thickness of the liner Yes.  
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.  
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 Yes.

Length of Bearing in Stern Bush next to and supporting propeller 6' 5 1/4"  
Propeller, diameter 20'-3" Pitch 15'-3" No. of Blades 4 State whether Movable No. Total Developed Surface 155 square feet.  
Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Yes. Can the H.P. or I.P. Turbines exhaust direct to the condenser Yes.

No. of Turbines fitted with astern wheels Two Feed Pumps No. and size 2 at 130,000 lbs/hr. Harbour 6' x 8 1/2' x 18" How driven 1 Electric 1 Steam Turbine Means Recip.  
Pumps connected to the Main Bilge Line No. and size Two at 140 tons/hr each One Emergency 26 tons/hr. Electric system  
Last Pumps, No. and size Two at 12000 gals/hr. Lubricating Oil Pumps, including Spare Pump, No. and size Two at 12000 gals/hr.

Two independent means arranged for circulating water through the Oil Cooler Yes. Suctions, connected both to Main Bilge Pumps and Auxiliary  
Pumps, No. and size:—In Engine and Boiler Room 3 at 3 1/2" 3 at 2 1/2" In Pump Room 2 at 4"  
Holds, &c. 1 @ 2 1/2" in forward pump room 2 @ 2 1/2" in cargo hold.  
In Water Circulating Pump Direct Bilge Suctions, No. and size Two at 12" Independent Power Pump Direct Suctions to the Engine Room

Are all the Bilge Suction pipes in Holds Tinned Well fitted with strum-boxes 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 Yes.  
All Sea Connections fitted direct on the skin of the ship Boxes & Tubes Are they fitted with Valves or Cocks Yes.

Are 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 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 ring plate Yes. What pipes pass through the bunkers None How are they protected None  
Do pipes pass through the deep tanks None Have they been tested as per rule Yes.

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 Yes. Is the Shaft Tunnel watertight Yes. Is it fitted with a watertight door Yes.  
LERS, &c.—(Letter for record 5) Total Heating Surface of Boilers Generator 11622, Superheater 1326 square feet. DESIGNED 15701.44 lb. Pressure 565 lb. SUPERHEAT 655  
Forced Draft fitted Yes. No. and Description of Boilers B & W. Integral Turbine W/T Working Pressure 565 lb.  
Report on Main Boilers now forwarded? Yes.



Is { a Donkey Boiler fitted? no. If so, is a report now forwarded? ✓  
{ an Auxiliary }  
Is the donkey boiler intended to be used for domestic purposes only? ✓  
Plans. Are approved plans forwarded herewith for Shafting? no. Main Boilers. no. Auxiliary Boilers. ✓ Donkey Boilers. ✓  
(If not, state date of approval) sent with L14 RPT N° 144818 Oil Fuel Burning Arrangements. no.  
Superheaters. no. General Pumping Arrangements. no. Date of approval. 21-5-53.  
Geared turbines situated aft. Have torsional vibration characteristics of system been approved? yes.

SPARE GEAR.  
Has the spare gear required by the Rules been supplied? yes.  
State the principal additional spare gear supplied. Spare Propeller & Tail shaft.

Steam to Steam Generator :- LLOYDS N° 9075 Bhm.  
Design Pressure 140 lb. sq. in.  
Safety valves adjusted to 130 lb. sq. in. 13-9-56  
Pipes :- FE 3/2" A 3/4" AF 3/4" A 3/4"

The foregoing is a correct description.

E. Stewart

Dates of Survey while building During progress of work in shops - - -  
During erection on board vessel - - -  
Total No. of visits. 16-8-54 6-10-55 HP-18-1-55 27-11-55  
Dates of Examination of principal parts - Casings 4-3-55 21-2-55 Rotors 12-11-54 12-3-56 Blading 18-1-55 Gearing 28-9-56  
Wheel shaft 29-11-55 Thrust shaft 29-11-55 Intermediate shafts 12-3-56 Tube shaft ✓ Screw shaft 19-1-56  
Propeller 19-1-55 Stern tube 3-5-56 Engine and boiler seatings 1-3-56 Engine holding down bolts 29-8-56  
Completion of fitting sea connections 27-2-56 Completion of pumping arrangements 25-9-56 Boilers fired 20-6-56 Engines tried under steam 25-26-56  
Main boiler safety valves adjusted 18-9-56 Thickness of adjusting washers PF 9/32" A 1/2" SPHT. 9/32" SF 17/64" A 21/64" SPHT. 9/32"  
Rotor shaft, Material and tensile strength HP-36.5 Tens. sq. in. A.P.-37.0 Tens. sq. in. Siemens Steel Identification Mark. 3982  
Flexible Pinion Shaft, Material and tensile strength Siemens Steel HP-35.0 Tens. sq. in. A.P.-35.0 Tens. sq. in. Identification Mark. 3996  
Pinion shaft, Material and tensile strength Siemens Steel HP-42.0 Tens. sq. in. A.P.-45 Tens. sq. in. Identification Mark. 3985

Chemical analysis.  
If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment. HP 39959 LP 39960  
1st Reduction Wheel Shaft, Material and tensile strength Siemens Steel HP-31.0 Tens. sq. in. A.P. 30.0 Tens. sq. in. Identification Mark. 40826  
Wheel shaft, Material Siemens Steel Identification Mark. 39956 B Thrust shaft, Material Siemens Steel Identification Mark. 40826  
Intermediate shafts, Material Siemens Steel Identification Marks. 40851 40853 Tube shaft, Material ✓ Identification Marks. 1130 lb.  
Screw shaft, Material Siemens Steel Identification Marks. SPARE 40849 Steam Pipes, Material Steel Test pressure. 1140 lb.  
Date of test 22-8-56, 6-7-56, 19-7-56, 7-9-56, 9-9-56 etc. 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? ✓ 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. no.  
Is this machinery a duplicate of a previous case? yes. If so, state name of vessel. San Inturcato

General Remarks. (State quality of workmanship, opinions as to class, &c.) The above machinery has been constructed under Special Survey in accordance with the approved Plans, the Society's Rules, & the Secretary's letters, the materials & workmanship are good. Machinery has been properly installed in the vessel, tried under full working conditions with satisfactory results, & is eligible in my opinion to be classed with the record of L.M.C. 9.56. T.S. C.L. Fitted for Oil Fuel Flash Point above 150°F.

The amount of Entry Fee ... £ 151 : 10 : When applied for.  
Construction ... £ 147 : 16 : 19  
Special ... £ 7-0-0  
Donkey Boiler Fee ... £ : : When received.  
Travelling Expenses (if any) £ : : 19  
Committee's Minute L14 RPT 100 L 16 OCT 1956  
Assigned + LMC 9.56  
T.S 9.56  
Fitted for O.F. 9.56 Flash Point above 150°F

W. Hapleshaw & J. S. Stewart  
Engineer Surveyors to Lloyd's Register of Shipping.

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