

REPORT ON STEAM TURBINE MACHINERY.

No. 2619
24 JUL 1936

Received at London Office

Date of writing Report 23.7.36 When handed in at Local Office 23.7.36 Port of *Barras*
No. in Survey held at *Barras* Date, First Survey 10.5.35 Last Survey 28.7.1936
Reg. Book. on the *Imm Se Steamship "AWATEA"* (Number of Visits 158)
Built at *Barras* By whom built *Vickers Armstrongs Ltd.* Yard No. 707 When built 1936.
Engines made at *- do -* By whom made *- do -* Engine No. 707 When made 1936.
Boilers made at *- do -* By whom made *- do -* Boiler No. 707 When made 1936.
Shaft Horse Power at Full Power 22500 Owners *Union Steamship Co of New Zealand* Port belonging to *Wellington* 142.
Nom. Horse Power as per Rule 1861 Is Refrigerating Machinery fitted for cargo purposes *Yes*. Is Electric Light fitted *Yes*.
Trade for which Vessel is intended *Intercolonial*.

STEAM TURBINE ENGINES, &c. — Description of Engines *Parras*

No. of Turbines Ahead 6 ✓ Direct coupled, single reduction geared to 2 ✓ propelling shafts. No. of primary pinions to each set of reduction gearing
Astern 4 ✓
direct coupled to Alternating Current Generator ✓ phase periods per second Direct Current Generator ✓ rated ✓ Kilowatts ✓ Volts at ✓ revolutions per minute;
or supplying power for driving ✓ Propelling Motors, Type ✓
ated ✓ Kilowatts ✓ Volts at ✓ revolutions per minute. Direct coupled, single or double reduction geared to ✓ propelling shafts.

	H.P.			I.P.			L.P.			ASTERN.		
TURBINE LADING.	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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	1 1/4"	22 3/4"	12	1 1/4"	26.93	7	2.58	55.16	3	2.69	46.36	2
2ND	1 1/4"	23 1/2"	10	2 1/4"	28.066	7	3.03	56.06	1	3.805	48.610	2
3RD	1 1/4"	24 1/2"	10	2 1/4"	28.795	7	3.673	57.184	1	5.415	51.930	2
4TH				3 1/4"	30.545	6	4.154	58.305	1	5.415	51.830	2
5TH				4 1/4"	32.92	6	4.710	59.431	1	5.415	51.830	2
6TH							5.351	60.701	1			
7TH							5.999	61.995	1			
8TH							6.643	63.286	1			
9TH							7.291	64.582	1			
10TH							7.935	65.870	1			
11TH							8.583	67.166	1			
12TH							9.227	68.462	1			

1st reduction wheel 130
L.P. 1757 main shaft
Pitch Circle Diameter 8.569 1st reduction wheel
2nd pinion 11.997 main wheel
1st pinions 20 1/2
2nd pinion 20 3/4
main wheel 29 1/4
diameter at bottom of pinion teeth 8.369
2nd 11.858

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings
Flexible Pinion Shafts, diameter 1st 17 1/2 2nd 17 1/2
Pinion Shafts, diameter at bearings External 1st 8 1/2 2nd 10 1/2 Internal 1st 2 1/2 2nd 3 1/2
Generator Shaft, diameter at bearings
Propelling Motor Shaft, diameter at bearings
Thrust Shaft, diameter at collars
Screw Shaft, diameter as per rule 19.07 as fitted 19.75
Is the screw shaft fitted with a continuous liner *Yes*.

Wheel Shafts, diameter at bearings main 19 1/2 diameter at wheel shroud 17.61
Intermediate Shafts, diameter as per rule 17.61 as fitted 18.15
Tube Shaft, diameter as per rule as fitted
Screw Shaft, diameter as per rule 19.07 as fitted 19.75
Is the screw shaft fitted with a continuous liner *Yes*.

Bronze Liners, thickness in way of bushes as per rule 1.0 as fitted 1.0
Thickness between bushes as per rule 1.0 as fitted 1.0
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*.
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 *Yes*.
Length of Bearing in Stern Bush next to and supporting propeller 3.0

Propeller, diameter 17.6 Pitch 19.6 No. of Blades 4 State whether Moveable *No* Total Developed Surface 115 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. Turbine exhaust direct to the condenser *Yes*.
No. of Turbines fitted with astern wheel 2
No. of Turbines fitted with direct acting 2
How driven 2
2 6000 lb/hour
2 25000 lb/hour

Pumps connected to the Main Bilge Line No. and size 1 190 lbs/hour
How driven Motor driven
Ballast Pumps, No. and size 1 190 lbs/hour
Lubricating Oil Pumps, including Spare Pump, No. and size 2 24000 galls/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 Engine and Boiler Room 1 190 lbs/hour 2 24000 galls/hour
In Pump Room 1 190 lbs/hour 2 24000 galls/hour

Main Water Circulating Pump Direct Bilge Suctions, No. and size 2 18" diam
Are all the Bilge Suction pipes in Hold's and Tunnel Well fitted with strum-boxes *Yes*.
Are 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*.
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 stokehold 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*.
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 *Yes*.
worked from *Budge & Bidel*.

