

## REPORT ON STEAM TURBINE MACHINERY. No. 98809

Received at London Office 29 MAY 1933

Date of writing Report 26 May 1933 When handed in at Local Office

29 MAY 1933 Port of London

No. in Survey held at Rugby.

Date, First Survey 24 January 1933 Last Survey 8 May 1933

Reg. Book. 74009 on the T.S. S.S. VICEROY OF INDIA

(Number of Visits 4)

Tons Gross  
Net

Built at Glasgow

By whom built A. Stephens &amp; Son, Ltd.

Yard No. 519.

When built 1929/3

Engines made at Rugby.

By whom made B.T.H. &amp; Co. Ltd.

Engine No.

When made 1929.

Boilers made at SPARROT. Rugby

By whom made B.T.H. &amp; Co. Ltd.

Boiler No.

When made 1933.

Shaft Horse Power at Full Power

Owners Peninsular &amp; Oriental Steam Navigation Co.

Port belonging to Glasgow.

Nom. Horse Power as per Rule

Is Refrigerating Machinery fitted for cargo purposes

Is Electric Light fitted

Trade for which Vessel is intended

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines SPARE ROTOR FOR MAIN TURBINE

No. of Turbines *Almond* *Direct coupled, single reduction geared* to *propelling shafts.* No. of primary pinions to each set of reduction gearing *Antera* *double reduction geared*

direct coupled to *Alternating Current Generator.* phase *periods per second* *rated* *Kilowatts* *Volts at* *revolutions per minute;*

for 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.			H.P. <i>com</i>			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.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	1.35	3'-6 1/4"	1	13	1.90	4'-1 1/8"						
2ND	1.45	2'-6"	1	14	2.45	4'-2 3/4"						
3RD	1.55	2'-6 1/2"	1	15	3.50	4'-4 1/8"						
4TH	1.68	2'-6 3/4"	1	16	5.14	4'-8"						
5TH	1.81	2'-6 3/4"	1	17	7.65	5'-1"						
6TH	1.96	2'-6 3/4"	1	18	12.01	5'-9 3/8"						
7TH	2.08	2'-7 3/8"	1									
8TH	2.24	2'-7 3/8"	1									
9TH	2.45	2'-7 3/8"	1									
10TH	2.41	2'-7 3/8"	1									
11TH	1.14	3'-9 3/8"	1									
12TH	1.38	4'-0 3/8"	1									

Note: 1st 10 rows of blades are monel metal  
Remainder Hamilton Metal

16th to 18th expansion blades are lacid.

Blades in 1st and 11th to 18th expansions  
are of clamp type.

Rotor similar to the original excepting for blade materials.

Shaft Horse Power at each turbine *H.P.* *I.P.* *L.P.* *Revolutions per minute, at full power, of each Turbine Shaft* *H.P.* *I.P.* *L.P.* *1st reduction wheel* *main shaft*

Rotor Shaft diameter at journals *H.P.* *I.P.* *L.P.* *Pitch Circle Diameter* *1st pinion* *1st reduction wheel* *main wheel* *2nd pinion* *main wheel* *Width of Face* *1st reduction wheel* *main wheel*

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings *1st pinion* *1st reduction wheel* *2nd pinion* *main wheel*

Flexible Pinion Shafts, diameter *1st* *2nd* *Pinion Shafts, diameter at bearings* *External* *Internal* *1st* *2nd* *diameter at bottom of pinion teeth* *1st* *2nd*

Wheel Shafts, diameter at bearings *1st* *main* *diameter at wheel shroud* *1st* *main* *Generator Shaft, diameter at bearings* *Propelling Motor Shaft, diameter at bearings*

Intermediate Shafts, diameter *as per rule* *as fitted* *Thrust Shaft, diameter at collars* *as per rule* *as fitted*

Tube Shaft, diameter *as per rule* *as fitted* *Screw Shaft, diameter* *as per rule* *as fitted* *Is the tube screw* *shaft fitted with a continuous liner*

Bronze Liners, thickness in way of bushes *as per rule* *as fitted* *Thickness between bushes* *as per rule* *as fitted* *Is the after end of the liner made watertight in the propeller boss*

If the liner is in more than one length are the junctions made 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 plastic material insoluble in water and non-corrosive

If two liners are fitted, is the shaft lapped or protected between the liners

shaft *If so, state type* *Is an approved Oil Gland or other appliance fitted at the after end of the tube* *Length of Bearing in Stern Bush next to and supporting propeller*

Propeller, diameter *Pitch* *No. of Blades* *State whether Movable* *Total Developed Surface* *square feet.*

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

Condenser *No. of Turbines fitted with astern wheels* *Feed Pumps* *No. and size* *How driven*

Pumps connected to the Main Bilge Line *No. and size* *How driven*

Ballast Pumps, No. and size *Lubricating Oil Pumps, including Spare Pump, No. and size*

Are two independent means arranged for circulating water through the *Oil Cooler* *Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge* *In Pump Room*

Pumps, No. and size:—In Engine and Boiler Room

In Holds, &c.

Main Water Circulating Pump Direct Bilge Suctions, No. and size *Independent Power Pump Direct Suctions to the Engine Room*

Bilges, No. and size *Are all the Bilge Suction pipes in Holds and Turret Well fitted with strum-boxes*

Are the Bilge Suctions in the Machinery Space led from easily accessible man-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

Are all Sea Connections fitted direct on the skin of the ship *Are they fitted with Valves or Cocks*

Are they fitted sufficiently high on the ship's side to be seen without lifting the stowhold plates

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

What pipes pass through the bunkers *Are the Overboard Discharges above or below the deep water line*

What pipes pass through the deep tanks *Are the Blow Off Cocks fitted with a spigot and brass covering plate*

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *How are they protected*

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 spaces, or from one compartment to another *Have they been tested as per rule*

Is the Shaft Tunnel watertight *Is it fitted with a watertight door*

BOILERS, &c.—(Letter for record ) Total Heating Surface of Boilers

Is Forced Draft fitted

No. and Description of Boilers

Working Pressure

Is a Report on Main Boilers now forwarded?

Is { a Donkey } Boiler fitted?  
{ an Auxiliary }

If so, is a report now forwarded?

Is the donkey boiler intended to be used for domestic purposes only

Plans. Are approved plans forwarded herewith for Shafting  
(If not state date of approval)

Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

State the principal additional spare gear supplied

THE BRITISH THOMSON HOUSTON Co., LTD.

The foregoing is a correct description,

W. J. Belsey per H. E. Manning

Manufacturer.

Dates of Survey while building { During progress of work in shops - - } 1933 Jan. 24, Feb. 10, March 1, May 8 = 4 Visits.  
{ During erection on board vessel - - - }  
Total No. of visits

Dates of Examination of principal parts—Casings ✓ Rotors 24/1/33 - 8/5/33 Blading 10/2/33 - 8/5/33 Gearing ✓

Wheel shaft ✓ Thrust shaft ✓ Intermediate shafts ✓ Tube shaft ✓ Screw shaft ✓

Propeller ✓ Stern tube ✓ Engine and boiler seatings ✓ Engine holding down bolts ✓

Completion of fitting sea connections ✓ Completion of pumping arrangements ✓ Boilers fired ✓ Engines tried under steam ✓

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

Rotor shaft, Material and tensile strength Steel 33.5/34.2 Ton<sup>2</sup>

Identification Mark 56612 floyds

Flexible Pinion Shaft, Material and tensile strength

Identification Mark Stamped thus on the coupling

Pinion shaft, Material and tensile strength

Identification Mark T3358

1st Reduction Wheel Shaft, Material and tensile strength

Identification Mark B. LLOYDS

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 Test pressure

Date of test

Is an installation fitted for burning oil fuel

Is the flash point of the oil to be used over 150°F.

Have the requirements of the Rules for the use of oil as fuel been complied with

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 a duplicate of a previous case

If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c.) Workmanship good.

This main turbine rotor has been built under special survey to plan approved for original rotor. Materials used have been made at works approved by the Committee and tested as required by the Rules.

Rotor is being kept at the B.T.H. Works at Rugby in the meantime.

This Rotor has now been fitted on board this vessel see L.O.N. Rpt. 99207.

W.K.

The amount of Entry Fee ... £ : : When applied for, 20 MAY 1933  
Special ... £ : :  
Donkey Boiler Fee ... £ : :  
Travelling Expenses (if any) £ 2:17:11 5-7-1933 JHM

When received,

Geo. A. Lang  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute : FRI. 16 FEB 1934

Assigned