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Rpt. 4a.

# REPORT ON STEAM TURBINE MACHINERY.

No. 23407  
13 NOV 1946

Received at London Office

Date of writing Report 25<sup>th</sup> OCT 1946 When handed in at Local Office 25<sup>th</sup> OCT 1946 Port of GREENOCK

No. in Survey held at GREENOCK Date, First Survey 12<sup>th</sup> JUNE 1945 Last Survey 2-10-46 19

Reg. Book. SING. SC. BEAVERLAKE TURB. EL (Number of Visits 49)

on the MACHINERY INSTALLED BY J. G. GREENOCK CONT 288 Tons } Gross 9824  
Net 5818

Built at PORT GLASGOW By whom built LITHGOWS L<sup>d</sup> Yard No. 1003 When built 1946

Engines made at NEWCASTLE By whom made C. A. PARSONS Engine No. 2620-3 When made 1946

Boilers made at PENFREW By whom made BABCOCK & WILCOX L<sup>d</sup> Boiler No. 106/1509 When made 1946

Shaft Horse Power at Full Power 9000 ✓ Owners CANADIAN PACIFIC STEAMSHIP CO L<sup>d</sup> Port belonging to LONDON ✓

Nom. Horse Power as per Rule 2052 Is Refrigerating Machinery fitted for cargo purposes YES ✓ Is Electric Light fitted YES ✓

Trade for which Vessel is intended OCEAN GOING

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

No. of Turbines Ahead Astern Direct coupled, single reduction geared } to propelling shafts. No. of primary pinions to each set of reduction gearing 1

direct coupled to { Alternating Current Generator phase 3 periods per second { Direct Current Generator rated 1000 Kilowatts Volts at 220 revolutions per minute;

for supplying power for driving Propelling Motors, Type Direct coupled, single or double reduction geared to propelling shafts.

rated 1000 Kilowatts Volts at 220 revolutions per minute.

TURBINE BLADING.	H. P.			I. P.			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												
2ND												
3RD												
4TH												
5TH												
6TH												
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. 1000 I.P. 1000 L.P. 1000 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. 1000 I.P. 1000 L.P. 1000 }

Rotor Shaft diameter at journals { H.P. 1000 I.P. 1000 L.P. 1000 } Pitch Circle Diameter { 1st pinion 1000 1st reduction wheel 1000 2nd pinion 1000 main wheel 1000 } Width of Face { 1st reduction wheel 1000 main wheel 1000 }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 1000 1st reduction wheel 1000 2nd pinion 1000 main wheel 1000 }

Flexible Pinion Shafts, diameter { 1st 1000 2nd 1000 } Pinion Shafts, diameter at bearings { External 1000 Internal 1000 } 1st { 2nd } diameter at bottom of pinion teeth { 1st 1000 2nd 1000 }

Wheel Shafts, diameter at bearings { 1st 1000 main 1000 } diameter at wheel shroud { 1st 1000 main 1000 } Generator Shaft, diameter at bearings Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule 17.5 ✓ as fitted 17.5 ✓ Thrust Shaft, diameter at collars as per rule 18.375 ✓ as fitted 18.375 ✓

Tube Shaft, diameter as per rule 20 ✓ as fitted 20 ✓ Screw Shaft, diameter as per rule 20 ✓ as fitted 20 ✓ Is the { tube } shaft fitted with a continuous liner { YES }

Bronze Liners, thickness in way of bushes as per rule 1 ✓ as fitted 1 ✓ Thickness between bushes as per rule 1/8 ✓ as fitted 1/8 ✓ 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 ✓

Propeller, diameter 18'-0" ✓ Pitch 17' ✓ No. of Blades 4 ✓ State whether Moveable YES ✓ Total Developed Surface 136 square feet.

If 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 NO ✓

No. of Turbines fitted with astern wheels NONE ✓ Feed Pumps { No. and size Two - 6 in reciprocating One Turbo How driven Steam 72,000 lbs/hr each }

Pumps connected to the Main Bilge Line { No. and size Two 150/hr each How driven 2 motors }

Ballast Pumps, No. and size One 150 tons/hr ✓ Lubricating Oil Pumps, including Spare Pump, No. and size Two 3250 gals/hr ✓

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 4 @ 3 1/2" pipe tunnel 1 @ 2 1/2" Frig. ER 2 @ 3" Prop. motor space 1 @ 3" Pump Room 2 @ 2 1/2" ✓

In Holds, &c. Tunnel 1 @ 4" 1 @ 2 1/2" N1-2 @ 3" N2-2 @ 3" Coff 1 @ 2 1/2" N3-2 @ 3 1/2" Dup tank 2 @ 3" N4-2 @ 3" N5-2 @ 3" N8-2 @ 3" 2 @ 2 1/2" Coff 2 @ 2 1/2" ✓

Main Water Circulating Pump Direct Bilge Suctions, No. and size One 2 1/2" ✓ Independent Power Pump Direct Suctions to the Engine Room One 2 1/2" ✓

Bilges, No. and size One 2 1/2" 6 @ 2 3/4" ✓ Are all the Bilge Suction pipes in Holds 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 or on reservoirs 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 NONE ✓ How are they protected YES ✓

What pipes pass through the deep tanks do ✓ 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 ✓

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BOILERS, &c.—(Letter for record )

Total Heating Surface of Boilers

✓ 7660 sq ft

Is Forced Draft fitted

Yes ✓

No. and Description of Boilers

One Babcock Johnson

Working Pressure

850 lb/sq in

Is a Report on Main Boilers now forwarded?

Yes ✓

Is { a Donkey  
an Auxiliary } Boiler fitted?

Yes ✓

If so, is a report now forwarded?

Yes ✓

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

No ✓

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

18-6-43

Main Boilers

Auxiliary Boilers

Donkey Boilers

Superheaters

See main boiler report

General Pumping Arrangements

Oil Fuel Burning Arrangements

SPARE GEAR.

Has the spare gear required by the Rules been supplied

Yes ✓

State the principal additional spare gear supplied

See separate list

Main boiler Glasgow op' N° 70651

Donkey boiler do " 70758

Turbine Newcastle " 103740

Generators London " 113796

Spare tail shaft 19 14508 CNH 13-5-46

for JOHN G. KINCAID & CO. LIMITED.

The foregoing is a correct description,

Chief of Technical Staff.

Manufacturer.

Dates of Survey while building { During progress of work in shops - - (1945) JUNE 12. 20. JULY 20. AUG. 8. 17. OCT. 4. 12. NOV. 21. 30. (1946) JAN. 10. 16. FEB. 25. MAR. 19.  
During erection on board vessel - - - APRIL 11. MAY 7. 13. 15. 17. 24. 28. 30. JUNE 3. 12. 20. 21. JULY 16. 19. 23. 25. 26. 29. 30. AUG. 6. 8. 16. 19. 20. 21. 22. 23. SEPT. 2. 5. 13. 20. 23.  
Total No. of visits 26. 27. 28. OCT. 2. 49.

Dates of Examination of principal parts—Casings ✓ Rotors ✓ Blading ✓ Gearing ✓

Wheel shaft ✓ Thrust shaft Glasgow 20/3/45 Intermediate shafts 24-5-46 Tube shaft ✓ Screw shaft 18-5-46

Propeller 18-5-46 Stern tube 20-7-45 Engine and boiler seatings 30-5-46 Engine holding down bolts 2-9-46 8-8-46

Completion of fitting sea connections 13-5-46 Completion of pumping arrangements 2/10/46 Boilers fixed 19-7-46 Engines tried under steam 2/10/46

Main boiler safety valves adjusted 17-10-46 Thickness of adjusting washers 3" valve 5/8" 2" valve 3/16"

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 SMS Identification Mark LR 14124 GEM 2

Intermediate shafts, Material SMS Identification Marks LR 14516 CNH. Tube shaft, Material ✓ Identification Marks ✓

Screw shaft, Material SMS Identification Marks LR 14516 CNH. Steam Pipes, Material SDS Test pressure 1850 lb/sq in

Date of test 4/5/45 11/2/46 Nottingham Certs 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. 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 No ✓

Is this machinery a duplicate of a previous case. Yes ✓ If so, state name of vessel Beaver Glen got up N° 23322

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

The machinery & boilers of this vessel have been constructed under special survey in accordance with the Rules & approved plans. They have been efficiently installed in the vessel & tested under full working conditions on a sea trial with satisfactory results and eligible in my opinion to be classed in the Society's Register book with record + LMC 10-46 & Notation Screw Shaft CL 1 WTB 850 lb/sq in Supd! FD. 1 Donkey boiler WTB 100 lb/sq in & fitted for oil fuel FP above 150°F. Certificates common to this vessel and Beaverdell also Beaver Glen completed, are attached.

The amount of Entry Fee ... £ 6 : : When applied for,  
Special ... £ 28 : 1 : 1st Oct 1946.  
Donkey Boiler Fee ... £ : : When received,  
Travelling Expenses (if any) £ : : 31st Oct 1946.

Charles J. Hunter  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 12 NOV 1946  
Assigned

