

REPORT ON STEAM TURBINE MACHINERY.

No. 14315
15 NOV 1930

Date of writing Report

19

When handed in at Local Office

13/11

1930

Port of

Antwerp

Received at London Office

No. in
Reg. Book

Survey held at Lerain and Hoboken

Date, First Survey

12.7.29

Last Survey

21.10

1930

on the Steel twin screw Steamer "Prince Charles"

(Number of Visits 47)

Gross
Tons

Net

Built at Hoboken

By whom built Chant. naval. Johnockerill

Yard No. 643

When built

1930.10

Engines made at Lerain

By whom made St. G. J.ockerill

Engine No.

When made

1930

Boilers made at Lerain

By whom made St. G. J.ockerill

Boiler No. 6828 1/2

When made

1930

Shaft Horse Power at Full Power 15400

Owners

Belgian Government

Port belonging to

Ostend

Nom. Horse Power as per Rule 2779

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted

yes

Trade for which Vessel is intended cross channel (Ostend-Dover)

STEAM TURBINE ENGINES, &c.—Description of Engines two sets of 3 turbines

No. of Turbines Ahead 3x2
Astern 1x2Direct coupled,
single reduction geared
double reduction geared

to both propelling shafts.

No. of primary pinions to each set of reduction gearing 3

direct coupled to Alternating Current Generator phase periods per second
Direct Current Generator 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
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	27 3/4	364 3/4	10	50 3/4	495 3/4	8	57 3/4	1354 3/4	3	26 3/4	1052	2
2ND	31	382	9	64	523	8	77	1394	3	52	1104	2
3RD	33	406	8	47	654	5	104	1448	3	100	1200	2
4TH	39	438	7	67	694	5	142	1524	2	100	1200	2
5TH				95	750	5	165	1570	2	100	1200	2
6TH							207	1654	2			
7TH							275	1790	2			
8TH							275	1790	1			
9TH							275	1790	1			
10TH							275	1790	1			
11TH							275	1790	1			
12TH												

Shaft Horse Power at each turbine H.P. 2566
I.P. 2566
L.P. 2566
Revolutions per minute, at full power, of each Turbine Shaft H.P. 3700
I.P. 3000
L.P. 1600
1st reduction wheel
main shaft 320Rotor Shaft diameter at journals H.P. 110
I.P. 130
L.P. 235
Pitch Circle Diameter 1st pinion 154.897 1st reduction wheel
2nd pinion 189.319 main wheel 1784.179
3rd pinion 355.689 1st reduction wheel
main wheel 2 x 420Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 1st pinion 357 1st reduction wheel
2nd pinion do. main wheel 717
3rd pinion do.Flexible Pinion Shafts, diameter outside 1st 120
2nd 160
3rd 220
Pinion Shafts, diameter at bearings External 1st 120
Internal 1st 120
2nd 160
3rd 220
Generator Shaft, diameter at bearings 1st 143.897
2nd 178.319
3rd 344.689Wheel Shafts, diameter at bearings 1st 310
main 310
Intermediate Shafts, diameter as per rule 276
as fitted 270-275 in way of bearing
Thrust Shaft, diameter at collars 1st 1700
main 1700
Propelling Motor Shaft, diameter at bearings 1st 290
as fitted 294Screw Shaft, diameter as per rule 301
as fitted 290
Is the tube screw shaft fitted with a continuous liner
Bronze Liners, thickness in way of bushes as per rule 16.6
continuous liner in way of stern bush only as fitted 18 1/2Thickness between bushes as per rule 6 3/4
as fitted 6 3/4
Is the after end of the liner made watertight in the propeller boss
If the liner is in more than one length are the junctionsmade by fusion through the whole thickness of the liner cast lead covering
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
Is an approved Oil Glandor other appliance fitted at the after end of the tube shaft
Length of Bearing in Stern Bush next to and supporting propeller 1700 tub shaft
Propeller, diameter 264 m. Pitch 3.27 m. No. of Blades 3
State whether Moreable no
Total Developed Surface 3.32 m² 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 I.P. Turbine exhaust direct to theCondenser no
No. of Turbines fitted with astern wheels 2 L.P.
Feed Pumps No. and size One vertical pump 20"x12.5"x28 and one rotary pump steam driven
How driven Rotary pumpPumps connected to the Main Bilge Line No. and size 2 independent 8"x9"x18"
How driven steam drivenBallast Pumps, No. and size one 20"x12.5"x28"
Lubricating Oil Pumps, including Spare Pump, No. and size 2 off 10"x9"x24"Are two independent means arranged for circulating water through the Oil Cooler Yes (two)
Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Engine and Boiler Room One 2 1/2" one 4 1/2" in E.R. and 3 of 2 1/2" in each boiler roomIn Holds, &c. One 2 1/2" in after peak one 2 1/2" in tunnel forward, one 2 1/2" in tunnel aft. one 2 1/2" in No. 1 hold one 2 1/2" in No. 2 hold
Main Water Circulating Pump Direct Bilge Suctions, No. and size two 3 1/2" dia.
Independent Power Pump Direct Suctions to the Engine RoomBilges, No. and size 7 ejectors diam. each 2 1/2"
Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes
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
Are all Sea Connections fitted direct on the skin of the ship the valves are fitted on welded boxes the cocks direct to the shell plating
Are they fitted with Valves or Cocks valves and cocksAre they fired sufficiently high on the ship's side to be seen without lifting the stokehold plates
Are the Overboard Discharges above or below the deep water line above
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel
Are the Blow Off Cocks fitted with a spigot and brass covering plate
What pipes pass through the bunkers fuel oil and fuel heating pipes
How are they protected with clipsWhat pipes pass through the deep tanks
Have they been tested as per rule
Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times
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
Is the Shaft Tunnel watertight
Is it fitted with a watertight door
worked from deck E. 1

BOILERS, &c.—(Letter for record **S.**) Total Heating Surface of Boilers **21.300 sq. ft. = 1980 m²**
Is Forced Draft fitted **yes** No. and Description of Boilers **6 Babcock & Wilcox Water-tube with superheater** Working Pressure **370 lb.**
Is a Report on Main Boilers now forwarded? **yes**
Is **a Donkey** Boiler fitted? **no** If so, is a report now forwarded? **yes**
Plans: Are approved plans forwarded herewith for Shafting **no** Main Boilers **no** Auxiliary Boilers **yes** Donkey Boilers **yes**
(If not state date of approval)

Superheaters **no** General Pumping Arrangements **no** Oil Fuel Burning Arrangements **no**
Spare Gear. State the articles supplied:—**2 bolts and nuts for each size of Rotor bearings, 4 bolts and nuts for main gear wheel bearings, 4 bolts and nuts bearings, two sets of coupling bolts, 2 thermometers for oil circulating systems, one set of bearing bushes for gear wheel shaft, one set for rotor shaft, one set of pads for brickell thrust, 1/2 set of tunnel shaft brasses, one set of valves, piston rings and bucket rings for each of the aux. pumps, 50 condenser tubes + 100 ferrules for main condenser, and 10 tubes and 20 ferrules for auxil. condenser, one right handed and one left handed propeller, 2 tunnel bearings complete, a quantity of assorted packing, bolts, nuts, bars, etc.**

SOCIÉTÉ ANONYME JOHN COCKERILL

The foregoing is a correct description,

[Signature]

[Signature]
CHEF DE SERVICE
DE LA COMPTABILITÉ

Manufacturer

Dates of Survey while building
During progress of work in shops: 12/19/29, 7-22/29, 3-12-19/29, 15-24/29, 6-13-21-25/29, 6-13-20-27/29, 10-21/29, 4-14/30, 7-13/30
During erection on board vessel: 7-18-25/30, 9-23/30, 5-12-22/30, 2-1/30, 3-14-20-23-30-31/30
Total No. of visits: 5/30, 14/30, 8/30, 10/30

Dates of Examination of principal parts—Casings 7/4/30, 7/4/30, 9/5/30 Rotors 4/2/30, 2/3/30 Blading 4/2/30, 2/3/30 Gearing 2/3/30

Wheel shaft Thrust shaft 24/1/30 Intermediate shafts 24/1/30 Tube shaft 24/1/30 Screw shaft 24/1/30

Propeller 13/5/30 Stern tube 5/4/30 Engine and boiler seatings 14/7/30 Engine holding down bolts 22/8/30

Completion of pumping arrangements 30/9/30 Boilers fixed 5/8/30 Engines tried under steam 30+31/10/30

Main boiler safety valves adjusted 25/10/30 Thickness of adjusting washers P.F.W. S.F.P. C.F. S.F.A. P.S. P.S. C.A. P.S. C.A. 14.6 15.3 15.4 15.1 15.2 15.5 15.9 14.3 14.1 15.7 14.8

Rotor shaft, Material and tensile strength 54/60 Ks. 23% elong. S. M. steel. Identification Mark 555-554-525 F.L.

Flexible Pinion Shaft, Material and tensile strength Identification Mark

Pinion shaft, Material and tensile strength S. M. steel 63 Ks. 22% elong Identification Mark 535/540 F.L.

1st Reduction Wheel Shaft, Material and tensile strength S. M. steel 49/55.5 Ks 26% elong Identification Mark 531 F.L.R.

Wheel shaft, Material Identification Mark Thrust shaft, Material S. M. steel Identification Mark 522-529 F.L.

Intermediate shafts, Material S. M. steel Identification Marks 521-3-4-7-8 F.L.R. Tube shaft, Material S. M. steel Identification Marks 519-526 F.L.

Screw shaft, Material S. M. steel Identification Marks 530-530 F.L. Steam Pipes, Material S. M. steel. Sol. drawn Test pressure 80 Ks

Date of test 12/8/30, 19-22-27/30, 2-30/30, 8-14-20/30 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 **yes**

Is this machinery a duplicate of a previous case **yes** If so, state name of vessel **10. Pinres Astrid and Prince Leopold**

General Remarks (State quality of workmanship, opinions as to class, &c.) **The machinery has been made under special survey, and the materials have been tested by the Society's surveyors. The materials and workmanship are good. The engine fitted satisfactorily in the vessel, and have afterwards been tried under steam with satisfactory results.**

The machinery of this vessel is in good condition, and eligible in my opinion to have the record of -1- L.M.C. 11-30 in the Society's Register Book.

(Fitted for oil fuel, flash point above 150°F.)

The amount of Entry Fee **1st entry of 1575** When applied for, **12/11/1930**

Special **L.M.C. 29662** When received, **5/12/30**

Donkey Boiler Fee ... Travelling Expenses (if any) **234-**

Committee's Minute **FRI. 21 NOV 1930**

Assigned **+ Lmb. 10.30 J.D.**

Fitted for oil fuel 10.30 H. above 150°F.

6 WTB. - 370 Ks