

L.P. EXHAUST REPORT ON STEAM TURBINE MACHINERY. No. 1837.

Received at London Office 26 OCT 1936

Writing Report 19th Oct 1936 When handed in at Local Office 19 Port of Bremen
Survey held at Bremen Date, First Survey 10th August Last Survey 14th October 1936
Book. on the Twin Screw "LEOPOLDVILLE" (Number of Visits 20.)
at Hoboken By whom built Soc. Anon. J. H. Cockerill Yard No. ✓ When built 1929
Tons } Gross 11256
Net 6521
By whom made Soc. An. J. Cockerill Engine No. ✓ When made 1929
By whom made Germania Werke A.G. Witten Boiler No. 27847/848 When made 1936
Horse Power at Full Power 1120 Owners Soc. Maritime Fide (Lloyd's Royal) Soc. Anon. Port belonging to Antwerp.
Consumption with Improving Turbine 4300 Is Refrigerating Machinery fitted for cargo purposes ✓ Is Electric Light fitted ✓
for which Vessel is intended Open Sea service.

STEAM TURBINE ENGINES, &c.—Description of Engines Exhaust Steam Turbine, System Faun-Nach, double reduction geared.

Ahead 2 Direct coupled, single reduction geared to 2 propelling shafts. No. of primary pinions to each set of reduction gearing 1
Astern ✓ double reduction geared
coupled to Alternating Current Generator phase periods per second Direct Current Generator rated Kilowatts Volts at revolutions per minute;
supplying power for driving Propelling Motors, Type
Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE	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.
EXPANSION							90 mm.	1030 mm.	1			
"							109 "	1068 "	1			
"							128 "	1106 "	1			
"							147 "	1144 "	1			
"							167 "	1184 "	1			
"							194 "	1238 "	1			
"							220 "	1290 "	1			
"												
"												
"												
"												
"												
"												

Horse Power at each turbine { H.P. ✓ 1120
I.P. ✓
L.P. ✓
Revolutions per minute, at full power, of each Turbine Shaft { H.P. ✓ 1st reduction wheel 544/525
I.P. ✓ main shaft 104
L.P. 2857 ✓
Pitch Circle Diameter { H.P. ✓ 1st pinion 270.2 1st reduction wheel 1509.2
I.P. ✓ 2nd pinion 386.6 main wheel 1947
L.P. 170 mm ✓ Width of Face { 1st reduction wheel 260 mm
main wheel 600 "
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 265.2 225 mm. 1st reduction wheel 1560.2 360 mm.
2nd pinion 422.5 " main wheel 525 mm.
1st 125 mm. 320 mm. diameter at bottom of pinion teeth { 1st 265.2 mm.
2nd 250. " 2nd 370.1 "
Pinion Shafts, diameter at bearings { 1st 230.250 mm.
main 500 mm. diameter at wheel shroud, { 1st 1444 mm. Generator Shaft, diameter at bearings ✓
main 1861 " Propelling Motor Shaft, diameter at bearings ✓
Intermediate Shafts, diameter as per rule ✓ Thrust Shaft, diameter at collars as per rule ✓
as fitted 380 mm. ✓
Screw Shaft, diameter as per rule ✓ Is the tube screw shaft fitted with a continuous liner ✓
as fitted ✓ Is the after end of the liner made watertight in the ✓
Liners, thickness in way of bushes as per rule ✓ Thickness between bushes as per rule ✓
as fitted ✓ 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 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 Moveable Total Developed Surface square feet.
Can the H.P. or I.P. Turbine exhaust direct to the ✓
Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine ✓
Lenser 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 ✓
Last Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size ✓
two independent means arranged for circulating water through the Oil Cooler ✓ Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge
Pumps, No. and size:—In Engine and Boiler Room In Pump Room ✓
Folds, &c. ✓ Independent Power Pump Direct Suctions to the Engine Room ✓
Water Circulating Pump Direct Bilge Suctions, No. and size ✓ Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes ✓
No. and size ✓ 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 ✓
all Sea Connections fitted direct on the skin of the ship ✓ Are they fitted with Valves or Cocks ✓
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 ✓
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 ✓
How are they protected ✓
at pipes pass through the bunkers ✓ Have they been tested as per rule ✓
at pipes pass through the deep tanks ✓
all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times ✓
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
apartment to another ✓ Is the Shaft Tunnel watertight ✓ Is it fitted with a watertight door ✓

W251-0047

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? ✓ 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 22.6.1936 Main Boilers ✓ Auxiliary Boilers ✓ Donkey Boilers ✓
(If not state date of approval)

Superheaters ✓ 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. *For each turbine 2 complete bearing halves for turbine bearing and for 1st pinion bearing, 10 pads & bolts for turbine thrust bearing, 20 pads & bolts for main thrust bearing, 28 pads and bolts and 6 springs for 2nd pinion thrust bearing, 3 coupling bolts for wheel shaft, 2 coupling bolts for rotor shaft, one spring for revomotor, reversing arrangement & pressure regulating valve, 130 nut for shaft of reversing gear, 1 can touch for oil filter, 75 tubes for oil cooler, a number of thermometer glasses.*

Deutsche Schiff- und Maschinenbau
Aktiengesellschaft
Werk: Act. Ges. „Weser“

Bremen 27.10.1936 J. Neumann Manufacturer.

The foregoing is a correct description,

Dates of Survey while building { During progress of work in shops - - 1936: - 10/8, 11/8, 12/8, 14/8, 20/8, 27/8, 2/9, 5/9, 9/9, 11/9, 14/9, 17/9, 21/9, 23/9, 24/9, 30/9, 2/10, 9/10, 13/10, 14/10.
During erection on board vessel - - -
Total No. of visits 20.

Dates of Examination of principal parts—Casings 10/8, 9/9, 11/9, 24/9, 2/10 Rotors 2/9, 2/9, 24/9, 2/10 Blading 17/9, 2/9, 24/9, 2/10 Gear 2/9, 17/9, 24/9, 2/10

Wheel shaft 20/8, 27/8, 24/9, 2/10 Thrust shaft 20/8, 27/8, 24/9, 2/10 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 fixed ✓ Engines tried under steam ✓

Main boiler safety valves adjusted ✓ Thickness of adjusting washers ✓

	Material and tensile strength	Identification Marks	Thrust shafts Material	Identification Marks
Rotor shafts	<i>L. M. Steel</i> 0.T. 847: 57.5 0.T. 848: 57.5	<i>LLOYD'S</i> No. 88. 4.5.30.7.36		
1st Pinion Shafts	<i>L. M. Steel</i> 0.T. 847: 76.0 0.T. 848: 76.0	No. 750. 4.5.17.6.36		
2nd Pinion shafts	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 751. 4.5.17.6.36		
1st Reduction Wheel Shafts	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 44. 4.5.15.7.36		
Wheel shafts	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 45. 4.5.15.7.36		
Intermediate shafts	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 626. 4.5.24.9.36		
Screw shaft	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 635. 4.5.24.9.36		
Thrust shafts	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 635. 4.5.24.9.36		
Tube shaft	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 635. 4.5.24.9.36		
Steam Pipes	<i>L. M. Steel</i> 0.T. 847: 75.4 0.T. 848: 75.4	No. 635. 4.5.24.9.36		

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 *no* If so, state name of vessel ✓

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

These L.P. Exhaust Steam Turbines with gear have been constructed under special survey in accordance with the approved plan, the Secretary's letter and otherwise in conformity with the requirements of the Rules. The materials used in the construction have been made at works recognized by the Committee and tested by the Society's Surveyors. The workmanship is of good quality.

This turbine machinery is eligible in my opinion to be recorded in the Society's Register of 1902 with the notation of 2 L.P. Turbines with D. R. gearing & hydraulic couplings, when satisfactorily fitted on board and tried under working conditions.

The amount of Entry Fee ... £	When applied for,
Special <i>L.M. 1216.00</i>	<i>21.10.1936</i>
Donkey Boiler Fee ... £	When received,
Travelling Expenses (if any) <i>L.M. 24.00</i>	<i>23.11.1936</i>

G. H. C. Kamm

Engineer Surveyor to Lloyd's Register of Shipping.

TUE 25 MAY 1937
FRI 13 AUG 1937

Committee's Minute

TUE 23 FEB 1937

Assigned



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Foundation