

# REPORT ON MACHINERY.

No. 2048

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Date of writing Report 13 May 1921 When lodged in at Local Office 19 Port of Stockholm  
 No. in Survey held at Tinspong Skm District Date, First Survey 8 Sept 1919 Last Survey 26 April 1921  
 Reg. Book. on the (Number of Visits 22)

Master Tinspong Built at Copenhagen By whom built Baltica Vaerftet No 2 When built 1921  
 Engines made at Tinspong By whom made Swenska Turbinfabriksaktiebolaget when made 1921  
 Boilers made at \_\_\_\_\_ By whom made \_\_\_\_\_ when made \_\_\_\_\_  
 Registered Horse Power \_\_\_\_\_ Owners Rederiaktie. Trafic Port belonging to Copenhagen  
 Shaft Horse Power at Full Power 1150 Is Refrigerating Machinery fitted for cargo purposes  Is Electric Light fitted

TURBINE ENGINES, &c.—Description of Engines Stal Turbomechanic Machinery No. of Turbines one  
 Diameter of Rotor Shafts Journals H.P. 74.49 Diameter of Pinion Shafts First gears 1600 mm; Second gears 255-142 mm hollow draft.  
 Diameter of Journals First gears 109.87 mm; Second - 240.00-142 mm Distance between Centres of Bearings First gears 360 mm; Second - 870 mm Diameter of Pitch Circle First pinions 167.4 mm; Second pinions 268.2 mm  
 Diameter of Wheel Shafts First gears 135 mm; Second - 280 mm Distance between Centres of Bearings First gears 360 mm; Second - 940 mm Diameter of Pitch Circle of Wheel First gears 193.36 mm; Second - 218.36 mm  
 Width of Face First gears two-100 mm; Second - two-290 mm Diameter of Thrust Shaft under Collars \_\_\_\_\_ Diameter of Tunnel Shaft \_\_\_\_\_  
 No. of Screw Shafts \_\_\_\_\_ Diameter of same \_\_\_\_\_ as per rule \_\_\_\_\_ as fitted \_\_\_\_\_ Diameter of Propeller \_\_\_\_\_ Pitch of Propeller \_\_\_\_\_  
 No. of Blades \_\_\_\_\_ State whether Moveable \_\_\_\_\_ Total Surface \_\_\_\_\_ Diameter of Rotor Drum, H.P. \_\_\_\_\_ L.P. \_\_\_\_\_ Astern \_\_\_\_\_  
 Thickness at Bottom of Groove, H.P. \_\_\_\_\_ L.P. \_\_\_\_\_ Astern \_\_\_\_\_ Revs. per Minute at Full Power, Turbine 3615 Propeller 80

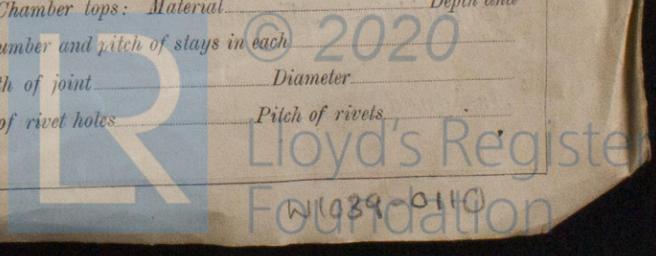
## PARTICULARS OF BLADING. See enclosed plan TIV 767887

	H.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.
1ST EXPANSION									
2ND									
3RD									
4TH									
5TH									
6TH									
7TH									
8TH									

No. and size of Feed pumps \_\_\_\_\_  
 No. and size of Bilge pumps \_\_\_\_\_  
 No. and size of Bilge suction in Engine Room \_\_\_\_\_  
 In Holds, &c. \_\_\_\_\_  
 No. of Bilge Injections \_\_\_\_\_ sizes \_\_\_\_\_ Connected to condenser, or to circulating pump \_\_\_\_\_ Is a separate Donkey Suction fitted in Engine Room & size \_\_\_\_\_  
 Are all the bilge suction pipes fitted with roses \_\_\_\_\_ Are the roses in Engine room always accessible \_\_\_\_\_  
 Are all connections with the sea direct on the skin of the ship \_\_\_\_\_ Are they Valves or Cocks \_\_\_\_\_  
 Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates \_\_\_\_\_ Are the Discharge Pipes above or below the deep water line \_\_\_\_\_  
 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 are carried through the bunkers \_\_\_\_\_ How are they protected \_\_\_\_\_  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times \_\_\_\_\_  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges \_\_\_\_\_  
 Is the Screw Shaft Tunnel watertight \_\_\_\_\_ Is it fitted with a watertight door \_\_\_\_\_ worked from \_\_\_\_\_

## BOILERS, &c.—(Letter for record \_\_\_\_\_) Manufacturers of Steel \_\_\_\_\_

Total Heating Surface of Boilers \_\_\_\_\_ Is Forced Draft fitted \_\_\_\_\_ No. and Description of Boilers \_\_\_\_\_  
 Working Pressure \_\_\_\_\_ Tested by hydraulic pressure to \_\_\_\_\_ Date of test \_\_\_\_\_ No. of Certificate \_\_\_\_\_  
 Can each boiler be worked separately \_\_\_\_\_ Area of fire grate in each boiler \_\_\_\_\_ No. and Description of Safety Valves to each boiler \_\_\_\_\_  
 Area of each valve \_\_\_\_\_ Pressure to which they are adjusted \_\_\_\_\_ Are they fitted with easing gear \_\_\_\_\_  
 Smallest distance between boilers or uptakes and bunkers or woodwork \_\_\_\_\_ Mean dia. of boilers \_\_\_\_\_ Length \_\_\_\_\_ Material of shell plates \_\_\_\_\_  
 Thickness \_\_\_\_\_ Range of tensile strength \_\_\_\_\_ Are the shell plates welded or flanged \_\_\_\_\_ Descrip. of riveting: cir. seams \_\_\_\_\_  
 long. seams \_\_\_\_\_ Diameter of rivet holes in long. seams \_\_\_\_\_ Pitch of rivets \_\_\_\_\_ Lap of plates or width of butt straps \_\_\_\_\_  
 Per centages of strength of longitudinal joint \_\_\_\_\_ rivets \_\_\_\_\_ Working pressure of shell by rules \_\_\_\_\_ Size of manhole in shell \_\_\_\_\_  
 plates \_\_\_\_\_  
 Size of compensating ring \_\_\_\_\_ No. and Description of Furnaces in each Boiler \_\_\_\_\_ Material \_\_\_\_\_ Outside diameter \_\_\_\_\_  
 Length of plain part \_\_\_\_\_ top \_\_\_\_\_ crown \_\_\_\_\_ bottom \_\_\_\_\_ Thickness of plates \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ No. of strengthening rings \_\_\_\_\_  
 Working pressure of furnace by the rules \_\_\_\_\_ Combustion chamber plates: Material \_\_\_\_\_ Thickness: Sides \_\_\_\_\_ Back \_\_\_\_\_ Top \_\_\_\_\_ Bottom \_\_\_\_\_  
 Pitch of stays to ditto: Sides \_\_\_\_\_ Back \_\_\_\_\_ Top \_\_\_\_\_ If stays are fitted with nuts or riveted heads \_\_\_\_\_ Working pressure by rules \_\_\_\_\_  
 Material of stays \_\_\_\_\_ Diameter at smallest part \_\_\_\_\_ Area supported by each stay \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ End plates in steam space \_\_\_\_\_  
 Material \_\_\_\_\_ Thickness \_\_\_\_\_ Pitch of stays \_\_\_\_\_ How are stays secured \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ Material of stays \_\_\_\_\_  
 Diameter at smallest part \_\_\_\_\_ Area supported by each stay \_\_\_\_\_ Working pressure by rules \_\_\_\_\_ Material of Front plates at bottom \_\_\_\_\_  
 Thickness \_\_\_\_\_ Material of Lower back plate \_\_\_\_\_ Thickness \_\_\_\_\_ Greatest pitch of stays \_\_\_\_\_ Working pressure of plate by rules \_\_\_\_\_  
 Diameter of tubes \_\_\_\_\_ Pitch of tubes \_\_\_\_\_ Material of tube plates \_\_\_\_\_ Thickness: Front \_\_\_\_\_ Back \_\_\_\_\_ Mean pitch of stays \_\_\_\_\_  
 Pitch across wide water spaces \_\_\_\_\_ Working pressures by rules \_\_\_\_\_ Girders to Chamber tops: Material \_\_\_\_\_ Depth and thickness of girder at centre \_\_\_\_\_ Length as per rule \_\_\_\_\_ Distance apart \_\_\_\_\_ Number and pitch of stays in each \_\_\_\_\_  
 Working pressure by rules \_\_\_\_\_ Steam dome: description of joint to shell \_\_\_\_\_ % of strength of joint \_\_\_\_\_ Diameter \_\_\_\_\_  
 Thickness of shell plates \_\_\_\_\_ Material \_\_\_\_\_ Description of longitudinal joint \_\_\_\_\_ Diameter of rivet holes \_\_\_\_\_ Pitch of rivets \_\_\_\_\_  
 Working pressure of shell by rules \_\_\_\_\_ Crown plates: Thickness \_\_\_\_\_ How stayed \_\_\_\_\_



SUPERHEATER. Type \_\_\_\_\_ Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_  
 Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler \_\_\_\_\_  
 Diameter of Safety Valve \_\_\_\_\_ Pressure to which each is adjusted \_\_\_\_\_ Is Easing Gear fitted \_\_\_\_\_

IS A DONKEY BOILER FITTED? \_\_\_\_\_ If so, is a report now forwarded? \_\_\_\_\_

SPARE GEAR. State the articles supplied. — for Turbomechanic machinery, see enclosed specifications. The spare gear will be inspected, when the machinery is being fitted in ship.

The foregoing is a correct description,

Manufacturer. \_\_\_\_\_

Dates of Survey while building { During progress of work in shops -- } 8/9, 2-16-21/12 1919, 24/11, 17/13, 15/14, 3/16, 13/7, 27/8, 19/9, 19/10, 9-27-28/11, 15-16-17/12 1920, 3/1, 16/3, 8.  
 { During erection on board vessel --- }  
 Total No. of visits at steel works and in shop 22 Is the approved plan of main boiler forwarded herewith \_\_\_\_\_

Dates of Examination of principal parts—Casings 3/1, 26/4, 21 Turbomachines " " " donkey " " "  
 Rotor shaft 8/9 19 Thrust shaft 26/4 21 Tunnel shafts 26/4 21 Blading 26/4 21 Gearing 8 26/4 21  
 Rotor shaft 26/4 21 Propeller \_\_\_\_\_

Stern tube \_\_\_\_\_ Steam pipes tested \_\_\_\_\_ Engine and boiler seatings \_\_\_\_\_ Engines holding down bolts \_\_\_\_\_  
 Completion of pumping arrangements \_\_\_\_\_ Boilers fixed \_\_\_\_\_ Engines tried under steam in shop 8 4 21

Main boiler safety valves adjusted \_\_\_\_\_ Thickness of adjusting washers \_\_\_\_\_  
 Material and tensile strength of Rotor shafts Turbine Chrome Nickel Steel 93.1 kg/cm<sup>2</sup> Identification Mark on Do. A no space admitted for other  
 Material and tensile strength of Pinion shafts First gear for Chrome Nickel Steel 90.0 kg/cm<sup>2</sup> Identification Mark on Do. First gear for LLOYD'S No 3161 SKM 17-3  
 Second wheel Second wheel S.M. Steel 60.7 kg/cm<sup>2</sup> Identification Mark on Do. Second wheel LLOYD'S No 3103 SKM 17-3  
 Material of Wheel shafts For S.M. Steel Identification Mark on Do. LLOYD'S No 3303 SKM 3-6-20A Material of Thrust shaft Identification Mark on Do.  
 Second wheel S.M. Steel Identification Mark on Do. LLOYD'S No 2993 SKM 24-1-20A  
 Material of Tunnel shafts S.M. Steel Identification Marks on Do. LLOYD'S No 3100 2-12-19 A Material of Screw shafts Identification Marks on Do.

Material of Steam Pipes \_\_\_\_\_ Test pressure \_\_\_\_\_  
 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 Section 49 of the Rules 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.) This steam turbine has been constructed under special survey in accordance with the Society's Rules and as approved in correspondence. The materials of the shafting are Siemens Martin Steel and Chrom Nickel Steel, tested and found to agree with the approved specifications of materials. The condenser has been tested with water pressure to 3 kg/cm<sup>2</sup> and found tight. The workmanship is good. The machinery has been tried under full power in shop and found to work well. I am of opinion that this machinery is eligible to be classed **RLMC** as soon as it has been fitted in ship in accordance with the Society's Rules for fitting.

Certificate (if required) to be sent to \_\_\_\_\_  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

	When applied for,	When received,
The amount of Entry Fee ... £ : :		
Special ... £ 51 : 3 : 0	19	
Donkey Boiler Fee ... £ : :		
Travelling Expenses (if any) £ 26 : 5 : 0	30-6-21	19
Total 77 : 8 : 0		

Acting Engineer Surveyor to Lloyd's Register of Shipping.  
 L. J. Andersson

Committee's Minute FRI 16 DEC. 1921

Assigned \_\_\_\_\_