

## REPORT ON MACHINERY.

No. 12510

FRI. 22 SEP. 1922

Date of writing Report 15 Sept 1922 When handed in at Local Office 19 Port of Rotterdam  
 No. in Survey held at Schiedam Date, First Survey 9 Nov 1920 Last Survey 12 Sept 1922  
 Reg. Book. on the Steel Screw Steamer **TENBERGEN** (Number of Visits 20)  
 Master Built at Hobith By whom built Hobith. Schuyt & Co. When built 1921-22  
 Engines made at Rusty & West Drayton By whom made The British Thomson Houston Co Ltd when made 1921  
 Boilers made at Schiedam By whom made New Oakway Shipbuilding Co when made 1921  
 Registered Horse Power 439 NHP. Owners Turney Schuyt & Co. Agentum Mij Port belonging to Rotterdam  
 Shaft Horse Power at Full Power 2500 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

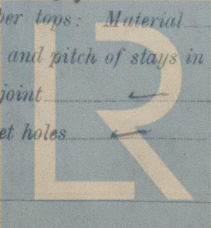
**TURBINE ENGINES, &c.** Description of Engines Curtis Impulse Turbine. No. of Turbines 2  
 Diameter of Rotor Shaft Journals, H.P. L.P. Diameter of Pinion Shaft  
 Diameter of Journals Distance between Centres of Bearings Diameter of Pitch Circle  
 Diameter of Wheel Shaft Distance between Centres of Bearings Diameter of Pitch Circle of Wheel  
 Width of Face Diameter of Thrust Shaft under Collars 15" (Mittchel. block) Diameter of Tunnel Shaft as fitted 13 1/4" Rule 12.97  
 No. of Screw Shafts One with condenser as fitted 15" Rule 14.6 Diameter of Propeller 18'0" Pitch of Propeller 17'-0"  
 No. of Blades 4 State whether Moveable No Total Surface 100 sq ft 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 3850 Propeller 45

**PARTICULARS OF BLADING.**

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 2 à 4 x 9 1/2 x 21" (Weirs)  
 No. and size of Bilge pumps 2 à 8 x 5 x 8 Lubricating pump 1 x 5 x 8  
 No. and size of Bilge suction in Engine Room 4 à 3 1/2" In dry tank under boiler 3 à 3" One in tunnel well à 3"  
 In Holds, &c. 2 in ex' hold à 3 1/2" 2 in ex' hold à 3 1/2" 2 in ex' hold à 3 1/2"  
 No. of Bilge Injections Yes sizes 9" Connected to condenser, or to circulating pump Is a separate Donkey Suction fitted in Engine Room & size Yes 3 1/2"  
 Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes  
 Are all connections with the sea direct on the skin of the ship Yes Are they 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 Discharge Pipes above or below the deep water line Above  
 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 are carried through the bunkers None How are they protected  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges Yes  
 Is the Screw Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Upper platform

**OILERS, &c.** (Letter for record S) Manufacturers of Steel William Beardmore & Co Ltd  
 Total Heating Surface of Boilers 6660 sq ft Is Forced Draft fitted No No. and Description of Boilers 3 Single Ended Marine Boilers  
 Working Pressure 100 lbs Tested by hydraulic pressure to 250 lbs Date of test 16.9.21 No. of Certificate 452  
 Can each boiler be worked separately Yes Area of fire grate in each boiler 57 sq ft No. and Description of Safety Valves to each boiler 2 Spring loaded Area of each valve 40 sq in Pressure to which they are adjusted 100 lbs Are they fitted with easing gear Yes  
 Smallest distance between boilers or uptakes and bunkers or woodwork 14" Mean dia. of boilers 15'-0" Length 11'-0" Material of shell plates Steel  
 Thickness 1 1/4" Range of tensile strength 20-52 tons Are the shell plates welded or flanged No Descrip. of riveting: cir. seams lap & x riv.  
 Long. seams Double butt 3 x riv Diameter of rivet holes in long. seams 1 1/4" Pitch of rivets 8 1/4" Lap of plates or width of butt straps 18 1/2"  
 Per centages of strength of longitudinal joint rivets 88% plates 84% Working pressure of shell by rules 104 lbs Size of manhole in shell 12 x 16"  
 Size of compensating ring 6 x 10" No. and Description of Furnaces in each Boiler 3 Marmon Material Steel Outside diameter 3'-9 1/4"  
 Length of plain part top 11' bottom 11' Thickness of plates crown 9" bottom 11" Description of longitudinal joint Welded No. of strengthening rings None  
 Working pressure of furnace by the rules 195 lbs Combustion chamber plates: Material Steel Thickness: Sides 1 1/2" Back 1 1/2" Top 1 1/2" Bottom 1 1/2"  
 Pitch of stays to ditto: Sides 8 x 8" Back 8 x 1 1/4" Top 8 x 8" If stays are fitted with nuts or riveted heads Both Working pressure by rules 206 lbs  
 Material of stays Steel Area supported by each stay 64 sq in Working pressure by rules 105 lbs End plates in steam space  
 Diameter at smallest part 1.480" Area supported by each stay 223 sq in Working pressure by rules 194 lbs Material of stays Steel  
 Thickness 1 1/2" Pitch of stays 19 x 19" How are stays secured plates Working pressure by rules 190 lbs Material of Front plates at bottom Steel  
 Diameter at smallest part 5'-9 1/4" Area supported by each stay 223 sq in Working pressure by rules 190 lbs  
 Thickness 1 1/2" Material of Lower back plate Steel Thickness 1 1/2" Greatest pitch of stays 14" Working pressure of plate by rules 239 lbs  
 Diameter of tubes 5 1/4" Pitch of tubes 4 1/8 x 4 1/8" Material of tube plates Steel Thickness: Front 1 1/2" Back 1 1/2" Mean pitch of stays 8 1/8 x 8 1/8"  
 Pitch across wide water spaces 15 1/4" Working pressures by rules 201 lbs Girders to Chamber tops: Material Steel Depth and  
 Thickness of girder at centre 2 x 1 1/4 x 9 1/2" Length as per rule 3'-0" Distance apart 8 1/2" Number and pitch of stays in each 3 à 8"  
 Working pressure by rules 186 lbs Steam dome: description of joint to shell None % 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



Lloyd's Register  
 Foundation  
 W540-0029



MANAGING DIRECTOR

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

Rotor shaft L Thrust shaft SB-9-21 Tunnel shafts 30-5-21 Screw shaft 16-9-21 Propeller 16-9-21

Stern tube 8-6-21 Steam pipes tested 15-8-22 Engine and boiler seatings 11-5-22 Engines holding down bolts 10-4-22  
18-2-22

Completion of pumping arrangements 9-9-22 Boilers fired 10-4-22 Engines tried under steam 9-9-22

Main boiler safety valves adjusted 5-9-22 Thickness of adjusting washers SB A 2 1/2 inch Centre A 2 1/2 inch 10 1/2 inch 2 1/2 inch

Material and tensile strength of Rotor shaft L Identification Mark on Do. L

Material and tensile strength of Pinion shaft L Identification Mark on Do. L

Material of Wheel shaft L Identification Mark on Do. L Material of Thrust shaft VM Steel Identification Mark on Do. L

Material of Tunnel shafts VM Steel Identification Marks on Do. L Material of Screw shafts VM Steel Identification Marks on Do. L

Material of Steam Pipes Steel ✓ Test pressure 540 lbs ✓

Is an installation fitted for burning oil fuel C No ✓ Is the flash point of the oil to be used over 150°F. L

Have the requirements of Section 49 of the Rules been complied with L

Is this machinery a duplicate of a previous case Only Boilers. If so, state name of vessel Is Duff. Carver. Quaker.  
s/s "Alchiba" for boilers

General Remarks (State quality of workmanship, opinions as to class, &c. The machinery has been built in accordance with the Rules, Approved plans and Secretaries Letters, Material tested as required and workmanship good. The whole was found in a good working condition during a trial trip and I am of opinion that this vessel is eligible to be recorded in the Society's Register Book with **✱ LMC. 9.22.** Snowshaft C.

It is submitted that  
this vessel is eligible for  
THE RECORD. + LMC 9.22. CL.

2 Steam Turbines geared to 1 Screw shaft.

The amount of Entry Fee	...	60.00	When applied for,
as per letter 17.3.19	...		15/9 1922
Special	...	225.60	
New Seals	...	410.40	
Donkey Boiler Fee	...	48.00	When received,
	...		20/9 1922
Travelling Expenses (if any)	...	35.00	

Committee's Minute

*Assigned*

FRI. 6 OCT. 1922

+ Lamb 9. 22

Engineer/Surveyor to Lloyd's Register of Shipping.