

"VULCAN" REDUCTION GEAR REPORT ON STEAM TURBINE MACHINERY

No. 1258.

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OCT

Date of writing Report 22nd April 1930 When handed in at Local Office 19 Port of Krismun
No. in Survey held at Krismun Date, First Survey 22nd Oct 1929 Last Survey 15th April 1930
Reg. Book. on the STEEL SC "KOTA AGOENG" (Number of Visits 23)

Built at Rotterdam By whom built Maats. Fynmoord Yard No. 317 When built
~~Engines~~ made at Krismun By whom made Turkish Ship. Co. N. York N.Y. Engine No. 21 When made 1930
Boilers made at _____ By whom made _____ Boiler No. _____ When made _____
Shaft Horse Power at Full Power 2 x 2750 = Owners Port belonging to _____
2 x 3150 max Is Refrigerating Machinery fitted for cargo purposes _____ Is Electric Light fitted _____

~~STEAM TURBINE ENGINES, &c.~~ Description of Engines Two 2 1/2 H.P. Turbine Engines No. of Turbines 2 Ahead _____
Typ: D 5352/70. Astern ✓
Direct coupled, single or double reduction geared to one propelling shaft. No. of primary pinions 2 direct coupled to _____ phase
periods per second, Alternating Current Generator rated _____ Kilowatts _____ Volts at _____ revolutions per minute; for supplying power for driving
Propelling Motors. Propelling Motors, Type _____
rated _____ Kilowatts _____ Volts at _____ revolutions per minute. Direct coupled, single or double reduction geared to _____ propelling shafts.

PARTICULARS OF 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												

Shaft Horse Power 2750 to 3180 max. Revolutions per minute, at full power, of each Turbine Shaft 215 to 226 max. 1st reduction wheel _____
main shaft 86 to 90 max Pitch Circle Diameter, 1st pinion 938.9 mm 2nd pinion _____ 1st reduction wheel _____ main wheel 2264.41 mm.

Width of Face, 1st reduction wheel pinion _____ main wheel 1000 mm. Distance between centres of pinion and wheel faces and the centre of the adjacent bearings,
1st pinion 900 mm. 2nd pinion _____ 1st reduction wheel _____ main wheel 900 mm. Flexible Pinion Shafts, diameter external 350 mm.
internal 150 "

Pinion Shafts, diameter at bearings External 1st 460 mm. 2nd _____ diameter at bottom of teeth of pinion 1st 922.38 mm. 2nd _____
Internal 1st 260 " 2nd _____

Wheel Shafts, diameter at bearings, 1st _____ main ext. 460 mm. diameter at wheel shroud, 1st _____ main 2150 mm.
Generator Shafts, diameter at bearings _____ Propelling Motor Shafts, diameter at bearings 460.440

Main Shafting, diameter of Tunnel Shafting as per rule _____ diameter of Thrust Shafting as per rule 406.5 mm.
as fitted _____ as fitted 460

diameter of Screw Shaft as per rule _____ Is the screw shaft fitted with a continuous liner the whole length of the stern tube _____ Is the after end of the liner
as fitted _____

made watertight in the propeller boss _____ If the liner is in more than one length are the joints burned _____ 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 appliance fitted at the after end of the shaft to permit of it being efficiently
lubricated _____

Length of Stern Bush _____ Diameter of Propeller _____

Pitch of Propeller _____ No. of Blades _____ State whether Moveable _____ Total Surface _____ square feet. If Single Screw, are

arrangements made so that steam can be led direct to the L.P. Turbine, and either the H.P. or I.P. Turbine can exhaust direct to the Condenser

No. of Turbines fitted with astern wheels _____ Total number of power driven Main and Auxiliary Pumps _____

No. and size of Feed Pumps _____ How driven _____ No. and size of Pumps connected to the Main Bilge Line _____

How driven _____ No. and size of Ballast Pumps _____ No. and size of Lubricating Oil Pumps, including _____

Spare Pump _____ Are two independent means arranged for circulating water through the Oil Cooler _____ No. and size of suction

connected to both Main Bilge Pumps and Auxiliary Bilge Pumps;—In Engine and Boiler Room _____ and in Holds, &c. _____

No. and size of Main Water Circulating Pump Bilge Suctions _____ No. and size of Donkey Pump Direct Suctions _____

to the Engine Room Bilges _____ 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 man-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

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 _____

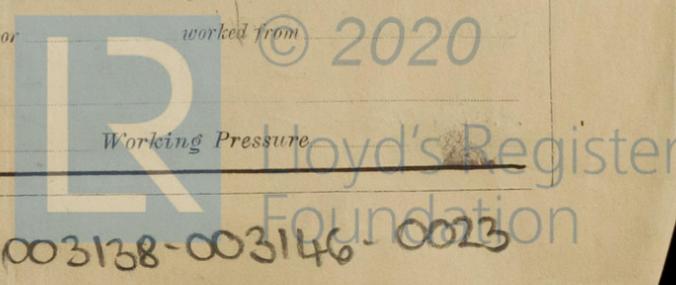
Are they each fitted with a Discharge Valve always accessible on the plating of the vessel _____ Are the Blow Off Cocks fitted with a spigot and brass covering plate _____

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 _____

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 Screw Shaft Tunnel watertight _____ Is it fitted with a watertight door _____ worked from _____

BOILERS, &c.—(Letter for record _____) Total Heating Surface of Boilers _____ Working Pressure _____
Is Forced Draft fitted _____ No. and Description of Boilers _____



Is a Report on Main Boilers now forwarded?

Is a Donkey Boiler fitted?

If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting 31/5/29 Main Boilers Auxiliary Boilers Donkey Boilers
(If not state date of approval)

Spare Gear. State the articles supplied:—
As required by the Rules.

The foregoing is a correct description,
Deutsche Schiff- und Maschinenbau Aktiengesellschaft

Manufacturer.

A. Holmann

Dates of Survey while building { During progress of work in shops -- } 1929: - Oct. 22, 30, Nov. 7, 13, 28, 29. Dec. 5, 27. 1930: - Jan. 3, 17, 30. Febr. 5, 14, 26.
{ During erection on board vessel --- } March 6, 10, 14, 19, 25, 29. April 4, 11, 15
Total No. of visits 23.

Dates of Examination of principal parts - Casings 22/10, 7/11, 30/11. ^{Flint/Rotors} 17/11, 26/12 Blading 22/10, 5/12, 6/3 Pinion shafts 22/10, 5/12, 6/3 Gearing 22/10, 5/12, 6/3

Wheel shaft and Thrust shaft 29/11, 3/1, 6/3 Tunnel shafts Screw shaft Propeller

Stern tube Engine and boiler seatings Engines holding down bolts

Completion of pumping arrangements Boilers fired ^{GEAR on test bed} Engines tried under steam 4/4/30

Main boiler safety valves adjusted Thickness of adjusting washers

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

Material and tensile strength of ~~Flint~~ Pinion Shaft Nickel Steel 44.3 tons per sq. inch Identification Mark on Do. LLOYD'S No. 1109 F.K. 12.9.29

Material and tensile strength of Pinion shaft " " 43.0 " " " " Identification Mark on Do. LLOYD'S No. 5957 J. 2.20.9.29

Material and tensile strength of ^{main wheel & Pinion} ~~Reduction~~ Wheel Shaft J. M. Steel 29.1 " " " " Identification Mark on Do. LLOYD'S No. 1081 F.K. 19.8.29

Material of ^{2 primary} shafts J. M. Steel 28.9 t. per sq. in. Identification Mark on Do. No. 1082/83 F.W. 9.18.29 Material of Thrust shaft Identification Mark on Do.

Material of Tunnel shafts Identification Marks on Do. Material of Screw shafts Identification Marks on Do.

Material of Steam Pipes Oil couplings Test pressure 6.5 kg/cm² Date of test 2.12.29. (F.W.)

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 carrying and burning oil fuel 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 "Vulcan" reduction gear has been made under Special Survey in accordance with the approved plan, the Secretary's letter and in all other respects in conformity with the Rules. The materials used in the construction and the workmanship are good. The gear has been tested on the makers test bed and found to work satisfactorily. In my opinion the vessel for which it is intended will be eligible for the notation of + LLOYD'S L.M.C., when the gear has been satisfactorily fitted on board and tried under working conditions. The gear casing has been stamped No. 430, LLOYD'S G.B. 4:4.30. A copy of this Report has been sent to the Rotterdam Surveyors.*

	When applied for,	When received,
The amount of Entry Fee ... £	26.4.30	27.5.30
Special <u>Krumm</u> £ 16 : 0		
<u>Hamburg</u> £ 4 : 0		
Donkey Boiler Fee ... £		
Travelling Expenses (if any) £		

G. H. C. Ham
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE. 4 NOV 1930

Assigned See F.E. Rpt.



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