

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY.

No. 13965

Received at London Office 20 APR 1954

Date of writing Report 8 4 1954

When handed in at Local Office 10 4 1954

Port of TRIESTE

No. in Survey held at TRIESTE

Date, First Survey 3rd January 1953 Last Survey 29th March 1954

Reg. Book. 40464

on the Steam Tanker "MARE ADRIACUM"

(Number of Visits 98)

Tons { Gross 20451 Net 12455

Built at TRIESTE

By whom built Cantieri Riuniti dello Adriatico

Yard No. 1773

When built 1954 - 3

Engines made at LYNN MASS.

By whom made General Electric Co.,

Engine No. 97893

When made 1953

Boilers made at Carteret N.J. U.S.A.

By whom made F.W. Corp. & C.R.D.A.

Boiler No. 398

When made 1953

Shaft Horse Power at Full Power 16,000

Owners Fratelli d'Amico

Port belonging to TRIESTE

Non-Horse Power as per Rule 3200

Is Refrigerating Machinery fitted for cargo purposes No

Is Electric Light fitted yes

Trade for which Vessel is intended Carrying Petroleum in Bulk

STEAM TURBINE ENGINES, &c.—Description of Engines

Cross compound

Double Reduction

No. of Turbines Ahead two to one propelling shafts. No. of primary pinions to each set of reduction gearing two

direct coupled to { Alternating Current Generator phase periods per second } 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												
2ND												
3RD												
4TH												
5TH												
6TH												
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

See Boston Mass. Rpt. 4a No. 4481

Shaft Horse Power at each turbine { H.P. I.P. L.P. } Revolutions per minute, at full power, of each Turbine Shaft { H.P. I.P. L.P. } 1st reduction wheel main shaft

Rotor Shaft diameter at journals { H.P. I.P. L.P. } Pitch Circle Diameter { 1st pinion 2nd pinion } 1st reduction wheel main wheel Width of Face { 1st reduction wheel main wheel }

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 2nd pinion } 1st reduction wheel main wheel

Flexible Pinion Shafts, diameter { 1st 2nd } Pinion Shafts, diameter at bearings External Internal { 1st 2nd } diameter at bottom of pinion teeth { 1st 2nd }

Wheel Shafts, diameter at bearings { 1st 2nd } diameter at wheel shroud, { 1st 2nd } Generator Shaft, diameter at bearings Propelling Motor Shaft, diameter at bearings

Intermediate Shafts, diameter as per rule as appd. 480 mm Thrust Shaft, diameter at collars as per rule as appd. 13.375" Tube Shaft, diameter as per rule as fitted

Screw Shaft, diameter as per rule as appd. 571 mm Is the shaft fitted with a continuous liner yes reduced to 552 at coupling

Thickness between bushes as per rule as appd. 21 mm Is the after end of the liner made watertight in the propeller boss yes 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 two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland

or other appliance fitted at the after end of the tube shaft no Length of Bearing in Stern Bush next to and supporting propeller 2300 mm

Propeller, diameter 6480 mm Pitch 5350 mm No. of Blades 4 Stale whether Moveable fixed Total Developed Surface 18.6 square ft.

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine yes Can the H.P. exhaust Turbine exhaust direct to the

Condenser yes No. of Turbines fitted with astern wheels one Feed Pumps { No. and size 2 at 76 cu.mtr/Hr. 1 at 84 cu.mtr/Hr. } How driven Steam turbine Steam turbine

Pumps connected to the Main Bilge Line { No. and size one at 100 T/Hr. One at 90 T/Hr. One at 40 T/Hr. One at 100 T/Hr. } How driven Electric Electric Steam Steam

Ballast Pumps, No. and size E.R. 1 at 80 T/Hr. Forward Pump Room 1 at 100 T/Hr. Lubricating Oil Pumps, including Spare Pump, No. and size 2 at 110 T/Hr.

Are two independent means arranged for circulating water through the Oil Cooler yes Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Engine and Boiler Room E.R. 2 at 80 mm. 1 at 100 mm C/D Frs. 26/32 1 at 50 mm B.R. 2 at 70 mm

Forward Pump Room 1 at 80 mm C/D 93/94 2 at 90 mm Forward Flat 2 at 50 mm Chain locker 1 at 80 mm Main Water Circulating Pump Direct Bilge Suctions, No. and size (one at 18" dia) Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size 1 at 150 mm in E.R. & B.R. Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes yes

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 yes as practicable

Are all Sea Connections fitted direct on the skin of the ship yes Are they fitted with 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 Overboard Discharges above or below the deep water line both

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 pass through the bunkers bilge pump overboard discharge How are they protected Heavy steel piping welded joints. Have they been tested as per rule

++ See Secretary's letter "ENG" dated 10th Feb. 1953

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BOILERS, &c.—(Letter for record) Total Heating Surface of Boilers 2 x (boiler 6710 Supt.1293 Ec.4970 sq.ft.)

Is Forced Draft fitted yes No. and Description of Boilers Two Foster Wheeler W.T. Working Pressure 650 lbs/ sq. "

Is a Report on Main Boilers now forwarded? yes

Is { a Donkey } Boiler fitted? NO

If so, is a report now forwarded?

Plans. Are approved plans forwarded herewith for Shafting 15.4.52 Main Boilers N.Y. 21.4.52 Auxiliary Boilers - Donkey Boilers -
(If not state date of approval) N.Y. Jett. 16.6.53 14.10.52 Approved plans retained for sister vessel, Yard No. 1777

Superheaters N.Y. General Pumping Arrangements 12.12.52 Oil Fuel Burning Arrangements 19.3.53

Spare Gear. State the articles supplied:—

Torsional vibration characteristics of the shafting installation for this vessel were approved for a service speed of 110 R.P.M. Secretary's letter "ENG" - 10.3.53 refers.

With reference to the final paragraph of the above letter the undersigned attended various sea trials during which torsionograph records were taken. No severe gear hammer or rough running was observed during the various speed ranges, but slight rough running was noted between 48 & 60 R.P.M. of the screw shaft. As a temporary measure it has been recommended that the turbines should not be run continuously between this speed range. (See letter and torsionograph records attached).

CANTIERI RIUNITI DELL'ADRIATICO
Fabbrica Macchine S. Andrea

The foregoing is a correct description,

Manufacturer

Dates of Survey while building { During progress of work in shops -- } Items marked ++ below. Please see Boston Mass. Report No. 4481
{ During erection on board vessel -- } Please see attached sheet.
{ Total No. of visits }

Dates of Examination of principal parts—Casings ++ Rotors ++ Blading ++ Gearing 25.3.54

Wheel shaft ++ Thrust shaft ++ Intermediate shafts March 1954 Tube shaft - Screw shaft Sept. 1953

Propeller 28.12.53 Stern tube 23.9.53 Engine and boiler seatings Oct. 1953 Engine holding down bolts 11.12.53

Completion of pumping arrangements 12.3.54 Boilers fired Oct. 1953 Engines tried under steam Full power 24.3.54
For W.P. Drums 650 lbs ins. 2 Port boiler Ed. 16.9mm Aft 18.8mm Starboard boiler Ed. 18.6mm Aft 17.7mm
Main boiler safety valves adjusted Supt. 624 Thickness of adjusting washers Supt. 12.8mm Supt. 13.6mm

Rotor shaft, Material and tensile strength ++ Identification Mark ++

Flexible Pinion Shaft, Material and tensile strength ++ Identification Mark ++

Pinion shaft, Material and tensile strength ++ Identification Mark ++

1st Reduction Wheel Shaft, Material and tensile strength ++ Identification Mark ++

Wheel shaft, Material ++ Identification Mark ++ Thrust shaft, Material ++ Identification Mark ++

Intermediate shafts, Material E.F.S. Identification Marks IL 325 Tube shaft, Material - Identification Marks -

Screw shaft, Material E.F.S. Identification Marks IL 232 Steam Pipes, Material 0.5% Mo. Steel Test pressure 1350 lbs/ins 2

Date of test Dec. 12, 19, 24, Jan. 5, 11, 15, 22, Feb. 4, 9, 15, 17. 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 - If so, have the requirements 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.)

The main and auxiliary machinery of this vessel has been constructed under special survey of tested materials in accordance with the Secretary's letters and approved plans. The materials and workmanship are good.

The main and auxiliary machinery has been efficiently installed aboard the vessel to Rule requirements and on completion has been tried at sea under full working conditions and found satisfactory.

The machinery of this vessel is eligible, in my opinion, to be classed with the records:—

+ LMC - 3,54 Screwshaft CL Two steam turbines R.R. geared to screwshaft

2 WTG 650 lbs (Spt. 624 lbs) H.S. 20980 sq.ft. F.D.

Fitted for oil fuel 3,54 F.P. above 150°F.

Install of Machinery less 15% 484,500

The amount of Entry Fee ... £ 200,440

2 blrs 50% bill fee ... £ 34,500

Special less 4.5% ... £ 34,500

Donkey Boiler Fee ... £ 29,800

Travelling Expenses (if any) ... £ 23,573

Per Tax 3% ... £

Committee's Minute FRIDAY 28 MAY 1954

Assigned + LMC 3.54 (with Torsional Endorsement)

2 WTG 650 lb. (Spt. 624 lb.)

Fitted for O.F. 3.54 F.P. above 150°F. CL.

DUAL CLASS
L.R. & F.I.

Engineer Surveyor to Lloyd's Register of Shipping.



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