

Report on Steam Turbine Machinery.

No. 19852

Rpt. 4a.

Date of writing Report 9th 3. 1954 When handed in at Local Office 15/3/1954 Port of Genoa
No. in Survey held at Riva Trigoso Date, First Survey 29. 11. 52 Last Survey 12. 12. 1953
Reg. Book (Number of Visits 18)
on the Messa CANTIERI MARALI RIUNITI YARD 203 CONCA D'ORO Tons (Gross. ☒ Net. ☒
Built at PALERMO By whom built CANTIERI MARALI RIUNITI Yard No. 203 When built 1954
Engines made at RIYA TRIGOSO By whom made CANTIERI DEL TIRRENO Engine No. 4078-b When made 1954
Boilers made at By whom made Boiler No. When made
Shaft Horse Power at Full Power 12,000 Owners 298 R.P.M. Port belonging to Owners
Nom. Horse Power as per Rule 9,000 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. One set consisting of two steam turbines, double reduction geared to one propeller shaft.
No. of Turbines Ahead Two Direct coupled, single reduction geared to one propelling shafts. No. of primary pinions to each set of reduction gearing Two
Astern one double reduction geared
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	H. P.	I. P.	L. P.	ASTERN.
BLADING	<u>1 + 9</u>	<u>✓</u>	<u>1 in each wheel</u>	<u>1 + 1</u>
Impulse	<u>2 - 1 in each wheel</u>	<u>✓</u>	<u>1 in each wheel</u>	<u>2 in each wheel</u>
Blading	<u>No. of rows</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Reaction	<u>No. of stages</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>
Blading	<u>No. of rows in each stage</u>	<u>✓</u>	<u>✓</u>	<u>✓</u>

Shaft Horse Power at each turbine H.P. 5150 ✓ I.P. ✓ L.P. 4850 ✓ Revolutions per minute, at full power, of each Turbine Shaft H.P. 4826 ✓ 1st reduction wheel 651 ✓ I.P. ✓ main shaft 98 ✓ L.P. 3685 ✓
Rotor Shaft diameter at journals H.P. 125 mm Pitch Circle 1st pinion HP 226.4 mm 1st reduction wheel HP 1513.5 mm Width of 1st reduction wheel HP 2 x 280 mm
I.P. ✓ Diameter 2nd pinion HP 466.6 mm main wheel HP 3121.3 mm Face main wheel 2 x 500 mm
L.P. 125 mm 1st pinion HP 383.5 mm 1st reduction wheel HP 466.5 mm
Distance between centres of pinion and wheel faces and the centre of the adjacent bearings 2nd pinion HP 680 mm main wheel HP 320 mm
Will Flexible Pinion 1st HP 1513 mm Pinion Shafts, diameter at bearings External HP 180 mm 1st reduction wheel HP 1513.5 mm diameter at bottom of pinion teeth 1st HP 216.6 mm
Shafts, diameter 2nd L.P. 228 mm Internal HP 180 mm 1st reduction wheel HP 1513.5 mm 2nd HP 266.5 mm
Wheel Shafts, diameter at bearings 1st HP 225 mm diameter at wheel shroud 1st HP 1506 mm Generator Shaft, diameter at bearings ✓ 2nd HP 452.6 mm
main 528 mm main 300.6 mm Propelling Motor Shaft, diameter at bearings ✓
Intermediate Shafts, diameter as per rule as appeared Thrust Shaft, diameter at collars as per rule as appeared as fitted HP 200 mm reduced to 300 mm
as fitted 481 mm as per rule as appeared as fitted 530 - 481 mm Is the tube screw shaft fitted with a continuous liner yes
Tube Shaft, diameter as per rule as appeared Screw Shaft, diameter as per rule as appeared as fitted 530 - 481 mm Is the after end of the liner made watertight in the
Bronze Liners, thickness in way of bushes as per rule as appeared Thickness between bushes as per rule as appeared as fitted 1.5 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 If so, state type ✓ Length of Bearing in Stern Bush next to and supporting propeller 2,120 mm
Propeller, diameter 630 mm Pitch 5.4 mm No. of Blades 4 State whether Moveable no Total Developed Surface 13.39 square feet
If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine yes Can the H.P. or L.P. Turbines exhaust direct to the
Condenser yes No. of Turbines fitted with astern wheels one Feed Pumps No. and size ✓ How driven ✓
Pumps connected to the Main Bilge Line No. and size ✓ How driven ✓
Ballast Pumps, No. and size ✓ Lubricating Oil Pumps, including Spare Pump, No. and size ✓
Are two independent means arranged for circulating water through the Oil Cooler ✓ Suctions, connected both to Main Bilge Pumps and Auxiliary
Bilge Pumps, No. and size:—In Engine and Boiler Room ✓ In Pump Room ✓
In Holds, &c. ✓ Independent Power Pump Direct Suctions to the Engine Room ✓
Main Water Circulating Pump Direct Bilge Suctions, No. and size ✓ Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes ✓
Bilges, No. and size ✓ 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 ✓
Are all Sea Connections fitted direct on the skin of the ship ✓ Are they fitted with Valves or Cocks ✓
Are they fixed 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 ✓ 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 pass through the bunkers ✓ How are they protected ✓
What pipes pass through the deep tanks ✓ Have they been tested as per rule ✓
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 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? ☒
an Auxiliary
Is the donkey boiler intended to be used for domestic purposes only? ☒
Plans. Are approved plans forwarded herewith for Shafting ¹²⁻⁸⁻⁵² Main Boilers ☒ Auxiliary Boilers ☒ Donkey Boilers ☒
(If not, state date of approval) ²²⁻¹¹⁻⁵³
Superheaters ☒ General Pumping Arrangements ☒ Oil Fuel Burning Arrangements ☒
Geared turbines situated aft. Have torsional vibration characteristics of system been approved ☒ Date of approval ^{5th} 1-54

SPARE GEAR.

Has the spare gear required by the Rules been supplied?
State the principal additional spare gear supplied.

To be supplied at Palermo

The foregoing is a correct description.

CANTIERI DEL TIRRENO

Spangheroni

Manufacturer.

Dates of Survey while building { During progress of work in shops - - from 29th 11-52 to 4th 12-53
During erection on board vessel - - ☒
Total No. of visits 40

Dates of Examination of principal parts—Casings 29-9-53-8-10-53 Rotors 2-10-53 Blading 29-9-53 Gearing 17-11-53
Wheel shaft 2-10-53 Thrust shaft 2-9-53 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 ☒

Rotor shaft; Material and tensile strength Cr. Mo. steel - U.T.S. 50,800 kg/cm² Identification Mark LLOYD'S 144215196V
Flexible Pinion Shaft, Material and tensile strength { HP Cr. Mo. steel - U.T.S. 50,600 kg/cm² Identification Mark LLOYD'S 33115-31836M
LP Cr. steel U.T.S. 50,600 kg/cm²
Pinion shaft; Material and tensile strength HP, LP: Cr. Ni. Mo. steel - U.T.S. 95,105 kg/cm² Identification Mark LLOYD'S 144215196V
; Chemical analysis C. 0.31 - Si. 0.29 - S. 0.008 - P. 0.012 - Mn. 0.66 - Cr. 0.62 - Ni. 2.87 - Mo. 0.32

If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment. yes 21-1-53

1st Reduction Wheel Shaft, Material and tensile strength see flexible pinion shafts Identification Mark ☒

Wheel shaft, Material steel - U.T.S. 50,600 kg/cm² Identification Mark LLOYD'S 1436126V Thrust shaft, Material steel - U.T.S. 50,600 kg/cm² Identification Mark LLOYD'S 1436126V

Intermediate shafts, Material S.M. steel Identification Marks ☒ Tube shaft, Material ☒ Identification Marks ☒

Screw shaft, Material S.M. steel Identification Marks ☒ Steam Pipes, Material ☒ Test pressure ☒

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 yes If so, state name of vessel yards 935-936 - Cantieri Navali Riuniti, Livorno

General Remarks. (State quality of workmanship, opinions as to class, &c.) The steam turbine and the reduction gearing have been constructed under special survey of tested materials and they are in accordance with the approved plans, Cantieri's letter and Rule Requirements. The material and workmanship are good.

The parts are now being despatched to Palermo to be fitted on board by Messrs. Cantieri Navali Riuniti yard N° 903. When the machinery of this vessel have been installed and tried at full power to the satisfaction of the Palermo's Surveyors, the gear case and turbine casings specially examined on completion of a full power trials and found sound and free from defects, the vessel will be eligible to be classed in the Society's Register Book with the notation:

☒ LMC (with date) "Steam turbine D.P. geared to propeller shaft"

N.B. The gearing require to be specially examined and reported on after a period not exceeding 12 months on service.

The amount of Entry Fee 11% = £1,402.90d = When applied for. 10/3/1954
Special CAN. FUND... £1,120.87 =
Donkey Boiler Fee ... £ : : When received.
Travelling Expenses (if any) £1,612.48 =
REV. TAX... £1,143.03 =

190 2 Sample
Engineer Surveyor to Lloyd's Register of Shipping.

Lloyd's Register Foundation

Certificate (if required) to be sent to this office.

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

Assigned. See Rpt. 4.

FRIDAY 17 SEP 1954