

# Report on Steam Turbine Machinery. No. 25391

Rpt. 4a.

Date of writing Report 29th Sept., 1960 When handed in at Local Office 29/9/1960 Port of Genoa  
 No. in Survey held at Genoa & La Spezia Date, First Survey 11/7/57 Last Survey 13/7/1960  
 Reg. Book (Number of Visits 162)

on the ~~XXXX~~ ~~XXXX~~ ~~XXXXXX~~ Screw Vessel "CRISTINA D'AMICO" Tons (Gross 20700 (provisional) Net -)  
 Built at La Spezia-Muggiano By whom built S.A. Ansaldo-Cantieri Muggiano. Yard No. 1540 When built 1960  
 Engines made at Genoa-Sampierdarena By whom made S.A. Ansaldo-Stab. Meccanico Engine No. 1643 When made 1959  
 Boilers made at Genoa-Sampierdarena By whom made S.A. Ansaldo-Stab. Meccanico Boiler No. 6314 When made 1959  
 Shaft Horse Power Maximum 16,000 at 114 RPM Owners "ORTIGIA" S.p.A. di Navigazione Port belonging to Palermo  
 Service 14,500 at 110 RPM  
 M.N. 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. TWO steam turbines - double reduction geared to one propeller shaft.

No. of Turbines Ahead TWO ~~XXXXXX~~ to ONE propelling shafts. No. of primary pinions to each set of reduction gearing TWO  
 Astern ONE ~~XXXXXX~~ double reduction geared  
 direct coupled to Alternating Current Generator - phase - periods per second Direct Current Generator 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.
Impulse Blading	One impulse wheel, with one row of blades.	-	-	Two impulse wheels with two rows of blades each.
No. of rows	Three	-	Double flow.	-
No. of stages	-	-	-	-
Reaction Blading	No. of rows in each stage	-	16 rows in each flow	-

Shaft Horse Power at each turbine H.P. 7760 I.P. - L.P. 8240  
 Rotor Shaft diameter at journals H.P. 125 mm. I.P. - L.P. 225 mm.  
 Distance between centres of pinion and wheel faces and the centre of the adjacent bearings  
 QUILL HP: 156 mm. in body  
 Shafts, diameter XX 230 mm. at coupling.  
 Pinion Shafts, diameter at bearings External HP 170 mm. I.P. 200 mm. L.P. 241 mm.  
 Wheel Shafts, diameter at bearings main 580 mm. as approved  
 Intermediate Shafts, diameter as per rule 504 mm. as fitted  
 Tube Shaft, diameter as per rule - as fitted  
 Screw Shaft, diameter as per rule 572 mm. as fitted  
 Thrust Shaft, diameter at collars as per rule 480 mm. as fitted  
 Is the ~~XXXX~~ shaft fitted with a continuous liner yes.

Bronze Liners, thickness in way of bushes as per rule 29 mm. as fitted  
 Thickness between bushes as per rule 23 mm. as fitted  
 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 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 2570 mm.  
 Propeller, diameter 6300 mm. Pitch 5335 mm. No. of Blades four State whether Moveable solid Total Developed Surface 16,4 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. Turbine exhaust direct to the  
 Condenser yes No. of Turbines fitted with astern wheels One (LP) Feed Pumps No. and size two - 85 tons/hrs. each  
 How driven steam turbine driven  
 Pumps connected to the Main Bilge Line No. and size 2 - 100 tons/hr. in B.R. = 1 - 40 tons/hr. in B.R. = 1 - 100 tons/hrs in fwd. pump room  
 How driven E.D. steam d.

Ballast Pumps, No. and size 1 - 100 tons/hr. in B.R. (ED) Lubricating Oil Pumps, including Spare Pump, No. and size 2 - 126 tons/hr. = ED  
 Are two independent means arranged for circulating water through the Oil Cooler Yes Branch Bilge Suctions, No. and size: - In Engine  
 and Boiler Rooms 1 - 150 mms = 4 - 100 mms = 2 - 80 mms diam. In Pump Room fwd. 1 - 175 mms = 1 - 80 mms dia.

Main Water Circulating Pump Direct Bilge Suctions, No. and size 1 - 500 mms. dia. Direct Bilge Suctions to the Engine and/or Boiler Room  
 Bilges, No. and size 2 - 150 mms 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  
 Are all Sea Connections fitted direct on the skin of the ship shell plating Are they fitted with Valves or Cocks valves and cocks

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 below 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 None How are they protected -  
 What pipes pass through the deep tanks None 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 Yes  
 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 Yes Is the Shaft Tunnel watertight - Is it fitted with a watertight door - worked from -

BOILERS, &c.—Total Heating Surface of Boilers 2418 sq. mt. 26027 ft<sup>2</sup>  
 Is Forced Draught fitted yes No. and Description of Boilers TWO—two drums Foster Wheeler Working Pressure 47 Kg/cm<sup>2</sup>  
 Is a Report on Main Boilers now forwarded? yes.

Lloyd's Register  
 009796 - 009804 - 0033 113



Is a Donkey Boiler fitted? ☒ no *Stm Gen* If so, is a report now forwarded? *Stm Gen*  
Is the donkey boiler intended to be used for domestic purposes only? ☒ no  
Plans. Are approved plans forwarded herewith for Shafting? *26-6-56; 12-4-57* Main Boilers 18-1-54 Auxiliary Boilers - Donkey Boilers -  
(If not, state date of approval) *22-1-58; 19-2-58*  
Superheaters 18-1-54 General Pumping Arrangements 28.10.58 Oil Fuel Burning Arrangements 30.12.58  
Geared turbines } Have torsional vibration characteristics of system been approved. ☒ yes Date of approval 11/3/58.  
situated aft.

### SPARE GEAR.

Has the spare gear required by the Rules been supplied. ☒ Yes  
State the principal additional spare gear supplied. *One solid cast iron propeller*

**ANSALDO S.A.**  
**STABILIMENTO MECCANICO**

The foregoing is a correct description.

Manufacturer.

Dates of Survey while building: During progress of work in shops - From 11/7/57 to 10/12/59  
During erection on board vessel - From 13/8/59 to 13/7/60  
Total No. of visits 74+88 From 23/9/57 From 9/9/57 From 10/10/57 to From 27/8/57  
to 17/9/59 Rotors to 17/9/59 Blading 17/9/59 Gearing 17/8/59  
Dates of Examination of principal parts - Casings to 17/9/59 Rotors to 17/9/59 Blading 17/9/59 Gearing 17/8/59  
Wheel shaft 23-7-59 Thrust shaft 23-7-59 Intermediate shafts 23.1.59 Tube shaft - Screw shaft 17.6.59  
Propeller 1.7.59 Stern tube 19.6.59 Engine and boiler seatings 18.5.60 Engine holding down bolts 18.5.60  
Completion of fitting sea connections 20.6.59 Completion of pumping arrangement 24.6.60 Boilers fired 8.1.60 Engines tried under steam 17.6.60  
Main boiler safety valves adjusted 15.6.60 Thickness of adjusting washers  
Rotor shaft, Material and tensile strength HP rotor & astern impulse wheel Ni.Cr.Mo.Steel UTS 63/75 Kg/mm<sup>2</sup>, Y.P. > 45 Kg/mm<sup>2</sup>  
QUILL LP rotor: Mn.Ni.Va.Steel: UTS 53/60 Kg/mm<sup>2</sup>, Y.P. > 40 Kg/mm<sup>2</sup> Identification Mark see separate sheet  
Pinion shaft, Material and tensile strength Ni.Cr.Mo.steel UTS 85/95 Kg/mm<sup>2</sup>, Y.P. > 65 Kg/mm<sup>2</sup> Identification Mark see separate sheet  
Pinion shaft, Material and tensile strength Ni.Cr.Mo.Steel UTS 90/100 Kg/mm<sup>2</sup>; Y.P. > 70 Kg/mm<sup>2</sup> Identification Mark see separate sheet  
; Chemical analysis C.0.35/0.40; Mn.0.60/0.90; Ni.1.75/2.25; Cr.0.60/0.80; Mo.0.20/0.35; Si < 0.35.  
If Pinion Shafts are made of special steel state date of approval of chemical analyses, physical properties and heat treatment 26-6-56  
Wheel rim: Mn.Mo.Va.steel UTS 73/80 Kg/mm<sup>2</sup>, Y.P. > 50 Kg/mm<sup>2</sup> Identification Mark see separate sheet  
1st Reduction Wheel Shaft, Material and tensile strength S.M.steel 49/55 Kg/mm<sup>2</sup> Identification Mark see separate sheet  
Wheel shaft, Material S.M.steel 49/55 Kg/mm<sup>2</sup> Identification Mark see separate sheet Thrust shaft, Material S.M.steel Identification Mark see separate sheet  
Intermediate shafts, Material S.M.steel Identification Marks see separate sheet Tube shaft, Material - Identification Marks -  
Screw shaft, Material S.M.steel 44/50 Kg/mm<sup>2</sup> Identification Marks see separate sheet Steam Pipes, Material Cr.Mo.Steel S.D. Test pressure 94 Kg/cm<sup>2</sup>  
Date of test 1.15 & 20-1-60; 2 & 16-2-60; 3, 12, 18 & 24-3-60; 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  
Full description of Fire Extinguishing Apparatus fitted in machinery spaces. See separate sheet.  
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 S/S "MARIA ADELAIDE" - See Genoa Report No. 10  
The machinery of this vessel, has been constructed under

**General Remarks.** (State quality of workmanship, opinions as to class, etc.) The machinery of this vessel, has been constructed under special survey of tested materials and is in accordance with the approved plans, Secretary's letters and Rules requirements. The materials and workmanship are good. The complete installation has been tried under working condition at full power and found satisfactory. Afterward the fabricated LP turbine casing, gear case and gear wheels, have been specially examined and found, as far as could be seen sound and free from defects. The vessel is worthy to be classed in the Society's Register Book with the Records: +LMC 7/60 - CL and notation "Fitted for oil fuel FP above 150°F" - "Two steam turbines D.R.geared to propeller shaft". The vessel is fitted with a L.P. steam/steam generator which has been examined under steam and its safety valves adjusted as stated on the attached sheet, and an accumulation test satisfactorily carried out.

### FEES DURING CONSTRUCTION:

At 673.750 = Lm 15% = 573.688  
RT (See of date 10/10/59)  
The amount of Entry Fee 41.583.750 Lm (F) When applied for  
Special ... £ ... 1/8/ 1960  
Donkey Boiler Fee ... £ ... When received  
Travelling Expenses (if any) ... £ ...  
Committee's Minute. FRIDAY 11 NOV 1960  
Assigned. See Rpt. 1.

Engineer Surveyor to Lloyd's Register of Shipping.

Rpt. 9a

Port of

GENOA

Continuation of Report No.

25391

dated 29th Sept., 1960

on the

ANSALDO YARD No.1540.

"CRISTINA D'AMICO"

### IDENTIFICATION MARKS

	HP TURBINE	LP TURBINE
TURBINE ROTOR	Lloyd's Gen. S.5897 A.G.1-6-59	Forward Section LLOYD'S GEN. S.6007 W.G.13-8-59 After Section LLOYD'S GEN. S.5925 W.G.13-8-59 Astern Impulse wheel LLOYD'S GEN. S.6047 W.G.13-8-59
	1st RED. PINION LLOYD'S GEN. 2904 A.G. 23-4-59	LLOYD'S GEN. 2906 A.G.9-3-59.
	1st RED. GEAR WHEELS RIM LLOYD'S GEN. S.5784 W.G.16-7-59	LLOYD'S GEN. S.5962 A.G. 5-1-59.
SHAFT	LLOYD'S GEN. IL.892 W.G.16-7-59	LLOYD'S GEN. P.894 A.G. 5-1-59
	QUILL SHAFT LLOYD'S GEN. S.5857 A.G. 20-4-59	LLOYD'S GEN. S.5858 A.G.20-4-59
2nd RED. PINION	LLOYD'S GEN. S.6001 A.G.23-4-59.	LLOYD'S GEN. S.6000 A.G.23-4-59
	MAIN GEAR WHEEL	RIM LLOYD'S GEN. S.6320 A.G.23-7-59
THRUST COLLAR LLOYD'S GEN. P.311 A.G.23-7-59.		
INTERMEDIATE SHAFT	LLOYD'S GEN - IL 1445 - AG - 23.1.59	
SCREW SHAFT	LLOYD'S GEN - IL 1444 - WG - 17.6.59	
BRONZE PROPELLER	LLOYD'S GEN - P 6416 - G.M. - 2.7.59	
SPARE SCREW SHAFT		

SPARE PROPELLER (Cast iron) LLOYD'S GEN - EXAMINED - CM - 30.9.59 - No.6573

Steam/steam generator safety valves adjusted to :-

Combustible steam : 25 Kg/cm<sup>2</sup>

Produced steam : 9,5 Kg/cm<sup>2</sup>

Please See Continuation Sheet



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Foundation



on the ~~SS~~/M.S. "CRISTINA D'AMICO" Ansaldo Muggiano Yard No. 1540

Fire extinguishing arrangements.

In Engine Room:

4 S.W. hydrants with 65 mms. hoses.

7 9 liters froth extinguishers.

2 4 Kgs. CO2 extinguishers.

1 136 liters froth extinguishers.

Fixed full flooding CO2 system installation and steam smothering installation both operated from outside the E.R.

One box of sand and scoop.

In the boiler room:

2 S.W. hydrants with 65 mms. hoses.

1 45 liters froth extinguishers.

1 136 " " "

5-9 " " "

Fixed full flooding CO2 system installation and steam smothering installation both operated from outside.

Two boxes of sand and scoops.

Forward pump room:

1 S.W. hydrant with 65 mms hose.

2 9 liters froth extinguishers.

Fixed steam smothering installation operated from deck.

After cargo pump room:

2 9 liters froth extinguishers (entrances)

1 45 " " "

Fixed steam smothering installation operated from outside.

*[Handwritten signature]*