

4a.

## REPORT ON MACHINERY.

No. 5735

of writing Report 14. 7. 21 When handed in at Local Office 6. 8. 21 Port of *Genoa*  
 in Survey held at *Scarpicidarena* Date, First Survey *Jan 23<sup>rd</sup> 1920* Last Survey *Jan 23. 5. 21*  
 g. Book. on the *S. S. "Manin"* (Number of Visits *Genoa, 20. June 12*)  
 ster *S. DE BEL* Built at *Venice* By whom built *Carabinieri Navalio Acciaierie di Venezia* built *1921*  
 gines made at *Scarpicidarena* By whom made *Gio Amedeo & Co.* when made *1921*  
 ilters made at *" 522 NHP"* By whom made *"* when made *1921*  
 gistered Horse Power *470 NHP* Owners *Societa Venetiana di Nav. A. Vap.* Port belonging to *Venice*  
 aft Horse Power at Full Power *2200* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Not Complete*

INE ENGINES, &c.—Description of Engines *Geared Turbines* No. of Turbines *3*  
 of Rotor Shaft Journals, H.P. *2.9"* L.P. *4.5"* Diameter of Pinion Shaft *12.2"*  
 of Journals *9.4"* Distance between Centres of Bearings *57.84"* Diameter of Pitch Circle *55.48"*  
 of Wheel Shaft *14.17"* Distance between Centres of Bearings *65.9"* Diameter of Pitch Circle of Wheel *110.07"*  
 Face *43.69"* Diameter of Thrust Shaft under Collars *14.33"* Diameter of Tunnel Shaft as per rule *12.8"* as fitted *12.45"*  
 rew Shafts *One* *CL See app<sup>n</sup> plan* Diameter of same as per rule *14.2"* as fitted *13.18"*  
 ailes *4* State whether Moveable *No.* Total Surface *122.76* Diameter of Propeller *202.45"* Pitch of Propeller *196.85"*  
 at Bottom of Groove, H.P. *None* L.P. *None* Astern *None* Revs. per Minute at Full Power, Turbine *4514* Propeller *73*  
 Diameter of Rotor Drum, H.P. *11.8"* L.P. *31.49"* Astern *22.83"*

## CULARS OF BLADING.

	H.P. <i>MP</i>			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.
ANSION	<i>1.69</i>	<i>11.25</i>	<i>16.34</i>	<i>10</i>	<i>10</i>	<i>2.5</i>	<i>24.08</i>	<i>5</i>	<i>2</i>
"	<i>1.81</i>	<i>12.59</i>	<i>18.18</i>	<i>8</i>	<i>8</i>	<i>3.15</i>	<i>28.34</i>	<i>5</i>	<i>2</i>
"	<i>2.12</i>	<i>13.6</i>	<i>19.6</i>	<i>7</i>	<i>7</i>	<i>3.93</i>	<i>29.9</i>	<i>5</i>	<i>2</i>
"	<i>2.44</i>	<i>14.92</i>	<i>21.41</i>	<i>6</i>	<i>6</i>	<i>2.99</i>	<i>34.48</i>	<i>3</i>	<i>2</i>
"						<i>3.48</i>	<i>39.05</i>	<i>3</i>	<i>2</i>
"						<i>4.42</i>	<i>40.94</i>	<i>3</i>	<i>2</i>
"						<i>5.11</i>	<i>41.43</i>	<i>2</i>	<i>2</i>
"						<i>6.63</i>	<i>44.09</i>	<i>2</i>	<i>2</i>
size of Feed pumps	<i>2 @ 10.63 x 7.48 x 13.78</i>			<i>2 @ 10.63 x 7.48 x 13.78</i>			<i>2 @ 10.63 x 7.48 x 13.78</i>		
size of Bilge pumps	<i>2 @ 2 3/4 x 1 1/2 inched 1/2 chafing, and 2 @ 1 1/2 x 2 1/2 x 10</i>			<i>2 @ 2 3/4 x 1 1/2 inched 1/2 chafing, and 2 @ 1 1/2 x 2 1/2 x 10</i>			<i>2 @ 2 3/4 x 1 1/2 inched 1/2 chafing, and 2 @ 1 1/2 x 2 1/2 x 10</i>		
size of Bilge suction in Engine Room	<i>2 @ 4 3/4 x 1 @ 3 1/2 and 2 in Stoked @ 3 1/2</i>			<i>2 @ 4 3/4 x 1 @ 3 1/2 and 2 in Stoked @ 3 1/2</i>			<i>2 @ 4 3/4 x 1 @ 3 1/2 and 2 in Stoked @ 3 1/2</i>		
In Holds, &c.	<i>12 @ 3 1/2</i>			<i>12 @ 3 1/2</i>			<i>12 @ 3 1/2</i>		

ge Injections *1* sizes *10.6* Connected to *condenser, or to circulating pump* *Yes* Is a separate Donkey Suction fitted in Engine Room & size *1 @ 4 1/2"*  
 e bilge suction pipes fitted with roses *Yes* Are the roses in Engine room always accessible *Yes*  
 nnections with the sea direct on the skin of the ship *Yes* Are they Valves or Cocks *Both*  
 iared 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 *Below*  
 ach 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*  
 s are carried through the bunkers *Forward hold suction* How are they protected *Close casing*  
 ipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *Yes*  
 ilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges *Yes*  
 ew Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes*  
 RS, &c.—(Letter for record *S*) Manufacturers of Steel *Italiana Reg. Navali Certificate*  
 eating Surface of Boilers *4600 sq ft* Is Forced Draft fitted *Yes* No. and Description of Boilers *2 horizontal Multitubular*  
 Pressure *180 lbs.* Tested by hydraulic pressure to *360 lbs* Date of test *15.12.20* No. of Certificate *146*  
 boiler be worked separately *Yes* Area of fire grate in each boiler *65.95 sq ft* No. and Description of Safety Valves to *2*  
*2 direct spring* Area of each valve *9.62 sq ft* Pressure to which they are adjusted *180 lbs* Are they fitted with easing gear *Yes*  
 istance between boilers *20.5"* *uptakes and bunkers on woodwork* *9"* Mean dia. of boilers *198.03"* Length *141.6"* Material of shell plates *Steel*  
 Range of tensile strength *29-32* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *Double*  
 Diameter of rivet holes in long. seams *1.57* Pitch of rivets *16.69-834-4-17* Lap of plates or width of butt straps *23.48*  
 rivets *93.8* Working pressure of shell by rules *185.5 lbs.* Size of manhole in shell *14" x 12"*  
 plates *90.5*  
 pensating ring *31 1/2 x 38 1/2* No. and Description of Furnaces in each Boiler *3 Suspension* Material *Steel* Outside diameter *51.89*  
 top *4.7"* Thickness of plates *10.5"* Description of longitudinal joint *Welded* No. of strengthening rings *1*  
 plain part *4.7"* bottom *10.5"*  
 pressure of furnace by the rule *205.75 lbs* combustion chamber plates: Material *Steel* Thickness: Sides *1 1/16"* Back *1 1/16"* Top *1 1/16"* Bottom *1 5/16"*  
 ays to ditto: Sides *7.9 x 7.48* Back *8.07 x 8.07* Top *8.74 x 7.48* If stays are fitted with nuts or riveted head *other riveted* Working pressure by rules *204.5*  
 f stays *Steel* Diameter of smallest part *1.71-1.77* Area supported by each stay *59 sq ft* Working pressure by rules *217 lbs* End plates in steam space *254*  
 Thickness *15.75* Pitch of stays *15 x 17.5* How are stays secured *220 Contact* Working pressure by rules *180 lbs* Material of stays *Steel*  
 smallest part *4.07* Area supported by each stay *312 sq ft* Working pressure by rules *204* Material of Front plates at bottom *Steel*  
 Material of Lower back plate *Steel* Thickness *13* Greatest pitch of stays *14.17* Working pressure of plate by rules *230 lbs*  
 f tubes *3* Pitch of tubes *4.13* Material of tube plates *Steel* Thickness: Front *15.75 x 13.75* Back *13.75* Mean pitch of stays *8.26*  
 s wide water spaces *13.78* Working pressures by rules *183 lbs* Girders to Chamber tops: Material *Steel* Depth and  
 girder at centre *8.46 x 1.96* Length as per rule *30.4* Distance apart *8.74* Number and pitch of stays in each *3-7.48*  
 pressure by rules *240 lbs* Steam dome: description of joint to shell *None* 1/10 of strength of joint *None*  
 of shell plates *Material* Description of longitudinal joint *None* Diameter of rivet holes *None*  
 ng pressure of shell by rules *Crown plates: Thickness* How stayed *None*

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SUPERHEATER. Type *None*. Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to \_\_\_\_\_  
Date of Test \_\_\_\_\_ Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler \_\_\_\_\_  
Diameter of Safety Valve \_\_\_\_\_ Pressure to which each is adjusted \_\_\_\_\_ Is Basing Gear fitted \_\_\_\_\_

IS A DONKEY BOILER FITTED? *No*. If so, is a report now forwarded? ☒

SPARE GEAR. State the articles supplied: *Two studs & nuts for each size of rotor bearing gear wheel bearings and pinion bearings, one set of coupling bolts each size used. 1/20 of total no. of bolts & nuts (12 studs & nuts) for gear case and each turbine casing joint, 4 thermometers for oil circulating system. One set of bearing bushes for gear wheels of each size, for rotor, and for pinion shafts. 1/2 lb of carbon packing rings with springs for each gland of rotor shaft. One set of pads for nickel type main thrust. One set of feed & high pump valves. One set of valves for lubrication pump. One bucket & rod for lubricating oil pump. One escape valve spring of each size fitted. The foregoing is a correct description. Quantity of assorted bolts, studs & nuts, and bars & plates of iron*

Manufacturer.

Dates of Survey while building { During progress of work in shops -- }  
{ During erection on board vessel -- } *1921 Mar 2, 31, Apr 2, 21, May 20, June 17, July 3, 4, 28, 30, July 7, 8.*  
Total No. of visits *Twelve*

Is the approved plan of main boiler forwarded herewith *yes*

Dates of Examination of principal parts—Casings *29/1/20* Rotors *8/6/20* Blading *8/6/20* Gearing *25/5/20*

Rotor shaft *8/6/20* Thrust shaft *8/6/20* Tunnel shafts *8/6/20* Screw shaft *10/12/20* Propeller *31/3/21*

Stern tube *31/3/21* Steam pipes tested *23/6/21* Engine and boiler seatings *31/3/21* Engines holding down bolts *17/6/21*

Completion of pumping arrangements *8/7/21* Boilers fixed *30/6/21* Engines tried under steam *30/6/21*

Main boiler safety valves adjusted *8/7/21* Thickness of adjusting washers *P.B. 2 F. 23 A. 40 S. B. 2 F. 29. A. 14 in*

Material and tensile strength of Rotor shaft *Piemontese Martin steel 34 tons* Identification Mark on Do. *L10Y08 PTB 1.7.20*

Material and tensile strength of Pinion shaft *do 31 tons* Identification Mark on Do. *L10Y08 PTB 1.7.20*

Material of Wheel shaft *Steel* Identification Mark on Do. *L10Y08 PTB 1.7.20* Material of Thrust shaft *Steel* Identification Mark on Do. *L10Y08 PTB 1.7.20*

Material of Tunnel shafts *Steel* Identification Marks on Do. *L10Y08 MR 8.6.20* Material of Screw shafts *Steel* Identification Marks on Do. *L10Y08 S 10.12*

Material of Steam Pipes *Solid drawn Copper* Test pressure *360 lb.*

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

Have the requirements of Section 49 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 Machinery of this vessel has been built under special Survey at Saurpiedarua by Gio. A. & Co. and has been satisfactorily fitted on board by the Engineer & Acciaierie di Venezia. The materials and workmanship are good. On completion the turbines, boilers, and auxiliary machinery were examined under steam with satisfactory results.*

*The machinery of this vessel is eligible, in my opinion, for notation of + L M C 6.21.*

*Wireless fitted. Electric light not completed.*

The amount of Entry Fee *£ 480.* When applied for, *July 13 1921*  
Special *£ 84.20.* When received, *7.11.21*  
Donkey Boiler Fee *£*  
Travelling Expenses (if any) *£ 129.4*

*Geo. Forman & P. Raza*  
Engineer Surveyor to Lloyd's Register of Shipping

Committee's Minute *FRI. 2 SEP. 1921*

Assigned *MACHINERY DEPT. + L M C 6.21*  
*L. D. C. L.*

TUE. NOV. 15 1921

TUE. 10 MAY 1922

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