

# REPORT ON MACHINERY.

No. 75487

FRI. 4 MAY 1922

Date of writing Report *April 24<sup>th</sup> 1922* When handed in at Local Office *April 24<sup>th</sup> 1922* Port of *London*  
 No. in Survey held at *Mallend-on-Lyne* Date, First Survey *April 15<sup>th</sup> 1919* Last Survey *April 21<sup>st</sup> 1922*  
 Reg. Book. *1646* on the *Steel Liner screw steamer Laconia* (Number of Visits *260*) Gross *19679.53*  
 Tons Net *11829.42*  
 Master *By whom built* *Swan Hunter & Wg<sup>ts</sup> Richmond* When built *1922*  
 Engines made at *Mallend* By whom made *Mallend Shipway & Eng<sup>rs</sup> Co Lin* when made *1922*  
 Boilers made at *Mallend* By whom made *Mallend Shipway & Eng<sup>rs</sup> Co Lin* when made *1922*  
 Registered Horse Power *13500* Owners *Cunard Co* Port belonging to *Liverpool*  
 Shaft Horse Power at Full Power *13500* Is Refrigerating Machinery fitted for cargo purposes *no* Is Electric Light fitted *Yes*  
 " " *for feed* *2561*

**TURBINE ENGINES, &c.**—Description of Engines *Double Reduction geared Turbines* No. of Turbines *6*  
 Diameter of Rotor Shaft Journals, H.P. *8 1/2* IP *4 1/2* L.P. *8 1/2* Diameter of Pinion Shaft H.P. *6* IP *6* L.P. *8 1/2* 2<sup>nd</sup> Red. *16*  
 Diameter of Journals *16* Distance between Centres of Bearings *9 1/2* Diameter of Pitch Circle H.P. *10.4779* L.P. *16.4385* 2<sup>nd</sup> Red. *39.974*  
 Diameter of Wheel Shaft *20* Distance between Centres of Bearings *18 1/2* Diameter of Pitch Circle of Wheel *39.974*  
 Width of Face *60* Diameter of Thrust Shaft under Collars *19 1/2* Diameter of Tunnel Shaft *16.865*  
 No. of Service Shafts *2* Diameter of same *18.498* Diameter of Propeller *20-0* Pitch of Propeller *20-0*  
 No. of Blades *4* State whether Movable *Yes* Total Surface *125 sq ft* Diameter of Rotor Journals, H.P. *8 1/2* L.P. *8 1/2* Astern *8 1/2*  
 Thickness at Bottom of Groove, H.P. *1 1/2* L.P. *1 1/2* Astern *1 1/2* Revs. per Minute at Full Power, Turbine *1770* Propeller *90*

## ARTICULARS OF BLADING.

	H.P. AHEAD.			L.P. AHEAD.			HP 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.
EXPANSION	1 1/2	22 1/2	1-19 1/2	3 1/2	59	1-53 1/2	1 1/2	24 1/2	1-30 1/2
1 <sup>st</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
2 <sup>nd</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
3 <sup>rd</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
4 <sup>th</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
5 <sup>th</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
6 <sup>th</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
7 <sup>th</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
8 <sup>th</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
9 <sup>th</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2
10 <sup>th</sup>	1 1/2	22 1/2	1-19 1/2	3 1/2	61 1/2	1-53 1/2	1 1/2	24 1/2	1-30 1/2

No. and size of Feed pumps *One feed pump 2-11 1/2 x 26 stroke*  
 No. and size of Bilge pumps *9-9 1/2" duplex 9 1/2 x 9" double cylinder motor driven*  
 No. and size of Bilge suction in Engine Room *4-3 1/2" 2-2" and 5-3 1/2" oil bilge*  
 In Holds, &c. *Holds 1-2 & 4, tunnel, and after well, respectively, each*

No. of Bilge Injections *2* sizes *75"* Connected *to circulating pump* Is a separate Donkey Suction fitted in Engine Room & size *2-4"*  
 Are all the bilge suction pipes fitted with *check valves* Are the valves in Engine room always accessible *Yes*  
 Are all connections with the sea direct on the skin of the ship *Yes* Are they 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 Discharge Pipes 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*  
 That pipes are carried through the bunkers *None* How are they protected *None*  
 Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *Yes*  
 Are the Bilge Suction Pipes, Cocks, and Valves arranged so as to prevent any communication between the sea and the bilges *Yes*  
 Is the Screw Shaft Tunnel watertight *Yes* Is it fitted with a watertight door *Yes* worked from *Bulkhead deck*

**BOILERS, &c.**—(Letter for record *2*) Manufacturers of Steel *John Spencer* 3 S.B. 8 3 D.B.  
 Total Heating Surface of Boilers *30262* Is Forced Draft fitted *Yes* No. and Description of Boilers *3 double ended multitubular*  
 Working Pressure *225 lbs* Tested by hydraulic pressure to *385 lbs* Date of test *1.6.20* No. of Certificate *9409*  
 Can each boiler be worked separately *Yes* Area of fire grate in each boiler *166 sq ft* No. and Description of Safety Valves to each boiler *3 Spring loaded*  
 Area of each valve *12.56 sq in* Pressure to which they are adjusted *225 lbs* Are they fitted with easing gear *Yes*  
 Smallest distance between boilers or uptakes and bunkers or woodwork *30"* Mean dia. of boilers *14-6* Length *22-6* Material of shell plates *Steel*  
 Thickness *1 1/2* Range of tensile strength *32 to 34 tons* Are the shell plates welded or flanged *No* Descrip. of riveting: cir. seams *3-R lap*  
 g. seams *3-R lap* Diameter of rivet holes in long. seams *1 1/2* Pitch of rivets *10 1/2* Lap of plates or width of butt straps *24*  
 Percentages of strength of longitudinal joint *88.4* Working pressure of shell by rules *222.5* Size of manhole in shell *16 1/2*  
 Size of compensating ring *16 1/2* No. and Description of Furnaces in each Boiler *8 horizontal* Material *steel* Outside diameter *48 1/2*  
 Length of plain part *10* Thickness of plates *1 1/2* Description of longitudinal joint *Melted* No. of strengthening rings *None*  
 Working pressure of furnace by the rules *221* Combustion chamber plates: Material *steel* Thickness: Sides *3/8* Back *1/2* Top *1/2* Bottom *1/2*  
 Pitch of stays to ditto: Sides *8 1/2 x 8* Back *9 x 8* Top *8 1/2 x 7 1/2* If stays are fitted with nuts or riveted heads *Butts* Working pressure by rules *226.8*  
 Material of stays *Iron* Diameter at smallest part *3 1/2* Area supported by each stay *7 1/2* Working pressure by rules *226.8* End plates in steam space *226.8*  
 Material *steel* Thickness *1 1/4* Pitch of stays *2 1/2 x 17* How are stays secured *Butts* Working pressure by rules *220.4* Material of stays *steel*  
 Diameter at smallest part *7-670* Area supported by each stay *365.0* Working pressure by rules *220* Material of Front plates at bottom *steel*  
 Thickness *1* Material of Lower back plate *steel* Thickness *1 1/2* Greatest pitch of stays *8* Working pressure of plate by rules *220*  
 Diameter of tubes *2 1/2* Pitch of tubes *4-4* Material of tube plates *steel* Thickness: Front *1 1/4 x 1* Back *1 1/2* Mean pitch of stays *8*  
 Pitch across wide water spaces *13 1/2 x 8* Working pressures by rules *220.4* Girders to Chamber tops: Material *steel* Depth and  
 Thickness of girder at centre *8 1/2 x 1 1/2* Length as per rule *30 1/2* Distance apart *8 1/2* Number and pitch of stays in each *3-7 1/2*  
 Working pressure by rules *234* Steam dome: description of joint to shell *None* % of strength of joint *None*  
 Thickness of shell plates *Material* Description of longitudinal joint *None* Diameter of rivet holes *None*  
 Working pressure of shell by rules *Material* Crown plates: Thickness *None* How stayed *None*

S. S. Lancia

SUPERHEATER. Type *Acromith* Date of Approval of Plan \_\_\_\_\_ Tested by Hydraulic Pressure to *440*  
 Date of Test *27th July 1920* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *Yes*  
 Diameter of Safety Valve *2 1/2"* Pressure to which each is adjusted *225 lbs* Is Easing Gear fitted *Yes*

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

SPARE GEAR. State the articles supplied:—

*As per rule with additions. See attached list.*

The foregoing is a correct description,

Manufacturer.

*Andrew Lancia*

1919. April 15-25-29. May 6-12-14-19-21-27-29. June 4-7-8-11-14-16-17-23-29. July 4-7-8-11-14-16-17-23-29. Aug 11-17-27. Sept 1-8-9-12-15-18-22-23-25. Oct 1-2-3-5-12-14-16-17-21-22-23-28-29.  
 1919. Apr 15-25-29. May 6-12-14-19-21-27-29. June 4-7-8-11-14-16-17-23-29. July 4-7-8-11-14-16-17-23-29. Aug 11-17-27. Sept 1-8-9-12-15-18-22-23-25. Oct 1-2-3-5-12-14-16-17-21-22-23-28-29.  
 1920. April 7-8-12-15-23-26-27-30. May 6-12-14-19-21-27-29. June 4-7-8-11-14-16-17-23-29. July 4-7-8-11-14-16-17-23-29. Aug 11-17-27. Sept 1-8-9-12-15-18-22-23-25. Oct 1-2-3-5-12-14-16-17-21-22-23-28-29.  
 1921. April 7-8-12-15-23-26-27-30. May 6-12-14-19-21-27-29. June 4-7-8-11-14-16-17-23-29. July 4-7-8-11-14-16-17-23-29. Aug 11-17-27. Sept 1-8-9-12-15-18-22-23-25. Oct 1-2-3-5-12-14-16-17-21-22-23-28-29.  
 1922. April 7-8-12-15-23-26-27-30. May 6-12-14-19-21-27-29. June 4-7-8-11-14-16-17-23-29. July 4-7-8-11-14-16-17-23-29. Aug 11-17-27. Sept 1-8-9-12-15-18-22-23-25. Oct 1-2-3-5-12-14-16-17-21-22-23-28-29.  
 Dates of Survey while building { During progress of work in shops - - - 1921. April 7-8-12-15-23-26-27-30. May 6-12-14-19-21-27-29. June 4-7-8-11-14-16-17-23-29. July 4-7-8-11-14-16-17-23-29. Aug 11-17-27. Sept 1-8-9-12-15-18-22-23-25. Oct 1-2-3-5-12-14-16-17-21-22-23-28-29.  
 { During erection on board vessel - - - 1921. April 7-8-12-15-23-26-27-30. May 6-12-14-19-21-27-29. June 4-7-8-11-14-16-17-23-29. July 4-7-8-11-14-16-17-23-29. Aug 11-17-27. Sept 1-8-9-12-15-18-22-23-25. Oct 1-2-3-5-12-14-16-17-21-22-23-28-29.  
 Total No. of visits *260*

Is the approved plan of main boilers forwarded herewith *Yes*

Is the approved plan of donkey " " " *Yes*

Dates of Examination of principal parts—Casings *16-2-20* Rotors *18-9-19* Blading *1-11-20* Gearing *15-1-20*

Rotor shaft *18-9-19* Thrust shaft *8-10-19* Tunnel shafts *27-4-20* Screw shaft *3-5-21* Propeller *28-10-20*

Stern tube *26-10-20* Steam pipes tested *3-9-20* Engine and boiler seatings *12-7-21* Engines holding down bolts *15-7-21*

Completion of pumping arrangements *15-4-22* Boilers fired *12-7-21* Engines tried under steam *15-4-22*

Main boiler safety valves adjusted *15-4-22* Thickness of adjusting washers *15-4-22* Identification Mark on Do. *8-9-19*

Material and tensile strength of Rotor shaft *Siemens Martin steel 36-39 tons* Identification Mark on Do. *8-9-19*

Material and tensile strength of Pinion shaft *Nickel steel 45-47 tons* Identification Mark on Do. *8-9-19*

Material of Wheel shaft *steel* Identification Mark on Do. *8-9-19* Material of Thrust shaft *steel* Identification Mark on Do. *8-9-19*

Material of Tunnel shafts *steel* Identification Marks on Do. *27-4-20* Material of Screw shafts *steel* Identification Marks on Do. *27-4-20*

Material of Steam Pipes *steel* Test pressure *660 lbs*

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 Section 49 of the Rules been complied with *Yes*

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 vessel's machinery has been examined during construction, and the materials and workmanship are good, and in accordance with the requirements of the rules, and the approved plans. The safety valves have been adjusted under steam, and the machinery submitted to a trial, but no opportunity was given to see the turbines running full speed, or to have an accumulation test of the safety valves. This machinery will therefore be classed to be classed in the R. Roll, with the notation of +LMC(4)22, when a satisfactory trial has been held, and the safety valves tested for accumulation.*

The amount of Entry Fee ... £ *6* : - 0 - 0 When applied for, *24/4/22*

Special ... £ *164* : - 0 - 6 When received, *12/5/22*

Donkey Boiler Fee ... £ : : Travelling Expenses (if any) £ : : *24/4/22*

Committee's Minute *FRI. 23 JUN. 1922*

Assigned *+ L.M.C. 5-22*

*F.P. above 150°F.*

*L. P. above 150°F.*

*L. P. above 150°F.*

*L. P. above 150°F.*

*L. P. above 150°F.*

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