

# Report of Survey for Repairs, &c., of Engines and Boilers.

(Received at London Office *29 NOV 1943*)

Date of writing Report 29th Sept. 1943 When handed in at Local Office 7th Oct. 1943 Port of Baltimore, Maryland  
 No. in Survey held at Baltimore, Maryland Date, First Survey March 9th Last Survey 26th Aug. 1943  
 on the Machinery of the Wood, Iron or Steel S.S. "LEONARDO da VINCI" now "EMPINE CLYDE" (No. of Visits 80)

Gross Tonnage 7515 Vessel built at Spezia By whom Ansaldo San Giorgia When 1925  
 Net Tonnage 4205 Engines made at Sampierdarena By whom Cio Ansaldo & Co. When -  
 Boilers, when made (Main) - (Donkey) -  
 Owners Ministry of War Transport Owners' Address -  
 Managers City Line, Ltd. Port Mombassa India Voyage  
 If Surveyed Afloat or in Dry Dock Maryland Drydock Co. Particulars of Classification (which must be inserted precisely as in Register Book & Supplements).

CHARACTER for Special Survey Date of last Survey and of Periodical Surveys.	Years assigned expired.	Machinery and Boiler Surveys (including date of N.B., if any)
<u>100 A1</u>		
(Classification Contemplated)		
<u>Fitted for oil fuel</u>		

Particulars of Examination and Repairs (if any) L.M.C. & T.S.  
 Periodical Surveys, when held, must be reported in detail and serially in the terms of the Rules. State clearly the cause of Repairs, if any, and, in detail, the nature and extent of Examinations and subsequent Repairs. Repairs on account of Damage (the cause of which must be stated) should be separated from Repairs due to other causes; and besides being detailed in the body of the report, should be briefly summarised at the end of the report. State also the dates and initials of any letters respecting this case.

damage cases where the Surveyor has not made a special damage report he is required to state whether he offered his services for this purpose, and why they were declined.

Has a damage report made by anyone else? If so, by whom? -

Did the Surveyor personally go inside each Main Boiler separately and make a thorough examination at this time? Yes

Do the same for Donkey Boilers? Yes

What parts of the Boilers could not be thus thoroughly examined? -

What special means, in the absence of internal examination, were adopted by the Surveyor to assure himself of the thorough efficiency of those parts of each Boiler? -

Latest date of internal examination of each boiler P & S Aux. 4th June; FP & SWT 25th June; AP & SWT 5th July, 1943 Present condition of funnel(s) Good

Did the Surveyor examine the Safety Valves of the Main Boiler? Yes To what pressure were they afterwards adjusted under steam? 200 lbs.

Did the Surveyor examine the Safety Valves of Donkey Boiler? - To what pressure were they afterwards adjusted under steam? -

Did the Surveyor examine all the manholes, doors and their fastenings of the Main Boilers? Yes and of the Donkey Boilers? -

Did the Surveyor examine the drain plugs of the Main Boilers? P & S Scotch - Yes and of the Donkey Boilers? -

Did the Surveyor examine all the mountings of the Main Boilers? Yes and of the Donkey Boilers? -

Has the screw shaft now been drawn and examined? Yes Is it fitted with continuous liner? Yes Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently lubricated? -

Has the shaft now been changed? No If so, state reasons -

Has the shaft now fitted been previously used? - Has it a continuous liner? - Is an approved appliance fitted at the after end of the shaft to permit of it being efficiently lubricated? P & S

Date of examination of Screw Shaft 14 April 1943 State the distance between lignum vitae or bearing metal of stern bush and top of after bearing of screw shaft rewooded

Engine parts, when referred to by numbers, should be counted from forward. Yes Is electric light and/or power fitted? Yes

Did the Surveyor examine the generators, motors, switchgear, cables and fuses? Yes

Was the insulation resistance of the generators, circuits and apparatus been tested and found to be not less than 100,000 ohms? Yes

If the Survey is not complete, state what arrangements have been made for its completion and what remains to be done Main dynamo circuit brakes to be adjusted.

Work Done: Vessel placed in drydock, propellers, stern bushes, and outside fastenings examined.

Port and Starboard tailshafts drawn and examined, stern bush bearings rewooded.

Port and starboard main turbine gearing, couplings, shaft and bearings, main thrusts and line shafting examined. Port and starboard main condensers examined and tested. All auxiliaries examined. The valves, pipes and strainers of the pumping arrangements examined. Windlass and steering engines examined.

The four main water tube boilers and the two auxiliary Scotch boilers examined throughout with all mountings.

The safety valves of all six boilers adjusted under steam to working pressure, 200 lbs.

All accessories (Circ. 1748) tested under working conditions, oil fuel service opened and examined as under-mentioned, the controls and discharge lines examined and found in good order.

The fire extinguishing apparatus found efficient and adequate. (P.T.O.)

General Observations, Opinion, and Recommendation: -

State clearly what alteration, if any, is suggested to be made in the existing classification of the vessel's machinery in the Register Book, consequent upon this survey, and also any alteration required to be made in the records of the vessel's machinery, boilers, working pressures, &c.; thus, for example, B.S. 9,11, B.E.M.S. 9,11, \*L.M.C. 9,11, or \*L.M.C. 140 lb., F.D., &c.)

The machinery of this vessel is now in good and safe working condition and eligible

in my opinion to have records of L.M.C. 8,43 and T.S. 4,43 made in the Register Book, subject to the dynamo circuit

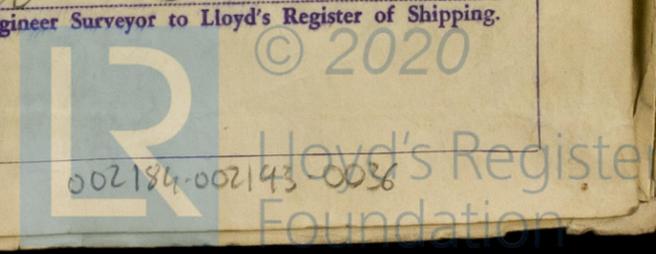
brakes being adjusted on arrival at New York to which port she is now proceeding.

Fees applied for Oct. 7, 1943

Received by me, Wm. B. Cowin Engineer Surveyor to Lloyd's Register of Shipping.

MS	£ 170.00	Fees applied for Oct. 7, 1943
BS	270.00	
TS	120.00	
Elect.	180.00	
Damage Repair Fee (if any)	£ 750.00	Received by me, 19
(per Section 29.)		
Travelling expenses (if chargeable)	£ 104.00	
Late Fees	20.00	

Committee's Minute NEW YORK OCT 20 1943  
 Assigned L.M.C. 8.43 subject  
T.S. 4.43



Insert Character of Ship and Machinery precisely as in the Register Book

Is a Certificate required? If so, to be sent to

Steam pipes tested to Rule Requirements. The electrical equipment examined and tested as required by Rule. Main turbine casings, rotors and blading examined and repaired at Newport News, Va. (See attached report.)

Repairs effected:- All six (3p & 3 s) main turbine flexible couplings dressed and refitted. Port M.P. coupling renewed. Port H.P., Starboard H.P. and L.P. gear end claws renewed, also Port and Starboard L.P. rotor claws renewed.

All pinion and wheel teeth dressed, contacts checked and realigned as necessary, Port and Starboard pinion shaft journals trued and bearings remetalled.

Main thrusts, Port and Starboard, cleaned and adjusted.

Port and Starboard Main Condensers cleaned, several tubes in each tested for wear and found good. Port circulating inlet expansion elbows casting renewed.

Pumping arrangements tested, after suction in forward boiler room altered for accessibility, made with straight tail pipe.

Port and Starboard oil coolers for Main Engine examined and tested.

All pumps including two main circulating with their engines, two dual air, four lub oil service, four main feed and one harbour feed, ballast, two general service, two attached bilge, one emergency bilge, four fuel oil service, one fuel oil transfer pumps opened, overhauled, necessary parts renewed, closed in good working order. Fore and after boiler fans and their engines placed in good working order; also two Fresh Water pumps, evaporator feed and brine pumps. Evaporator coils annealed and together with shell placed in good order and tested. Auxiliary condenser examined, tested, its condensate and circulating pumps examined and placed in good order. Refrigerator installation placed in good order, now for domestic purposes only. Feed water heaters and fuel oil heaters cleaned and tested.

External pipes of boiler blow down cocks renewed, one through No. 5 s and one through No. 8 port double bottom tanks.

W. T. Boilers: All four water tube boilers fitted with feed water regulators, all water tubes renewed (Lloyds 632 F.O. 27-3-43) inboard boxes of air heater tubes renewed, oil burners and pressure pipes renewed, soot blowers renewed, brick work and insulation renewed. Several leaking rivets in steam and water drums renewed, leaking seams caulked. Several rivets and approximately 3' welding cut out on water drums to examine plating and seams, several seams at drum ends found cracked between rivet holes, repaired as follows.

Forward Port Boiler:- Inboard water drum forward end of bottom plate cracked through line of rivets of head joint, defective portion removed, new portion attached with welded butt, reinforced with backing strip, the repair normalized.

Forward Starboard Boiler:- Inboard water drum bottom plate cracked between 8 rivets at forward head seam, now veed and welded, rivets renewed and joint reinforced with fillet weld on inside edge of head.

After Port W. T. Boiler:- Inboard water drum bottom shell plate cracked between rivets of forward head joint, cracks veed and welded, rivets in way renewed and joint reinforced with fillet weld on inside edge of head.

After Starboard W. T. Boiler:- Inboard water drum bottom shell plate cracked between rivets of after head joints, cracks veed and welded, joint reinforced with doubling plate.

The four W.T. Boilers tested hydraulically 350 lbs. and made tight.

Two Scotch Auxiliary Boilers:- All plain smoke tubes and air heater tubes renewed. Twenty-eight c.c. stays (12 p, 16 s) renewed. A large amount of caulking done on all four furnaces and c.c. seams. Port and Starboard safety valves renewed, mounting shell studs renewed where necessary. Combined main and auxiliary stop valve chest renewed on port boiler.

Electrical Equipment:- The four main shunt wound turbine driven dynamos, overhauled, commutators machined. Starboard forward dynamo armature rewound and insulation of commutator renewed and tested. Turbines opened, examined, port aft casing 1st row blading renewed, journals trued, bearings reconditioned, governors placed in good working condition. Main and auxiliary and emergency dynamo feeder cables renewed. One reconditioned auxiliary compound wound turbine driven 50 K.W. dynamo installed in work shop in Engine Room, "D" deck s.s. tested examined under full working conditions. Emergency dynamo replaced with a reconditioned 35 K.W. compound wound dynamo driven by a four cylinder Diesel Engine, examined and tested under full working conditions. Main switchboard renewed to Rule Requirements. Reverse current, ~~overload~~ and emergency governor trips tested. Two auxiliary switch boards renewed, one at Engine Room casing carrying power to vent fans and accommodation lighting, and one for navigating officers accommodation, a large number of lighting circuits renewed including Engine Room, Navigating, 2nd class accommodation. All circuits tested and repaired or renewed as necessary.

*Noted.*  
*Subject of water drums*  
*W.T. Boilers being examined*  
*before end of 27th*  
*See also endorsement*  
*26/11/43 re water drums*  
*& safety valves.*  
*Very Usher Learning at*  
*W.T. Boilers being examined*  
*by telephone & reports*  
*with a special*  
*examination of*  
*the water drums &*  
*to report special*  
*on the safety*  
*valves.*  
*27/11/43*