

# REPORT ON MACHINERY

No. 4229

28 MAY 1927

Received at London Office

4a.

of writing Report *May 9<sup>th</sup> 1927* When handed in at Local Office *May 11<sup>th</sup> 1927* Port of *Newport News Va.*  
 in Survey held at *Newport News Va.* Date, First Survey *April 28. 1926* Last Survey *April 15. 1927*  
 Book *Supp.* on the *Machinery for the Twin Screw Turbine Steamer "IROQUOIS"* (Number of Visits *52*)  
 Gross Tons *6209*  
 Net Tons *3405*  
 Built at *Newport News Va.* By whom built *Newport News S. B. & D. Co.* When built *1927-4.*  
 Lines made at *Newport News Va.* By whom made *Newport News S. B. & D. Co.* when made *1927-4.*  
 Makers made at *Bayonne N. J.* By whom made *Balcanian & Wilson Company* when made *1927-4.*  
 Registered Horse Power *2248* Owners *New York & Maine S. S. Corp.* Port belonging to *New York*  
 Net Horse Power at Full Power *8500* Is Refrigerating Machinery fitted for cargo purposes *Yes.* Is Electric Light fitted *Yes.*

**TURBINE ENGINES, &c.**—Description of Engines *Twin Screw Single Reduction Turbines* No. of Turbines *4*  
 Diameter of Rotor Shaft Journals, H.P. *7"* L.P. *7"* Diameter of Pinion Shaft *7"*  
 Diameter of Journals *7 3/4"* Distance between Centres of Bearings *2'-5 1/2"* Diameter of Pitch Circle *8'-7 1/2"*  
 Diameter of Wheel Shaft *5 1/2"* Distance between Centres of Bearings *6'-1 1/2"* Diameter of Pitch Circle of Wheel *104'-8 6/9"*  
 Diameter of Face *42" (2'-2 1/2")* Diameter of Thrust Shaft under Collars *13 5/8" (Kingpin Thrust)* Diameter of Tunnel Shaft *as per rule 12'-1 1/2"*  
 as fitted *12'-7 1/2"*  
 Number of Screw Shafts *2* Diameter of same as per rule *13'-2 1/2"* Diameter of Propeller *13'-3"* Pitch of Propeller *14'-5"*  
 as fitted *14'*  
 Number of Blades *3* State whether Moveable *No.* Total Surface *60 sq. ft. (one propeller)* Diameter of Rotor Drum, H.P. *✓* L.P. *✓* Astern *✓*  
 Mass at Bottom of Groove, H.P. *✓* L.P. *✓* Astern *✓* Revs. per Minute at Full Power, Turbine *1800.* Propeller *50.*

## DETAILS OF BLADING.

	H. P.			L. P.			ASTERN. H. P.		
	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	<i>1 1/16" 1 1/8"</i>	<i>44 7/8" 45 1/8"</i>	<i>2</i>	<i>2 3/8"</i>	<i>52 3/8"</i>	<i>1</i>	<i>1 3/8" 1 1/2"</i>	<i>45 1/2" 46 3/8"</i>	<i>3</i>
"	<i>7/8" 1 1/8"</i>	<i>46"</i>	<i>1</i>	<i>2 9/16"</i>	<i>53 1/8"</i>	<i>1</i>	<i>1 1/2" 1 5/8"</i>	<i>46 1/2"</i>	<i>3</i>
"	<i>1"</i>	<i>46 3/8"</i>	<i>1</i>	<i>3 3/8"</i>	<i>54 1/4"</i>	<i>1</i>	<i>1 5/8" 1 7/8"</i>	<i>47 1/2"</i>	<i>3</i>
"	<i>1 1/8"</i>	<i>46 5/8"</i>	<i>1</i>	<i>4 1/4"</i>	<i>56 1/2"</i>	<i>1</i>	<i>1 7/8" 2"</i>	<i>48 1/2"</i>	<i>3</i>
"	<i>1 1/4"</i>	<i>46 7/8"</i>	<i>1</i>	<i>5 1/8"</i>	<i>58 7/8"</i>	<i>1</i>	<i>2" 2 1/8"</i>	<i>49 1/2"</i>	<i>3</i>
"	<i>1 1/2"</i>	<i>47 1/8"</i>	<i>1</i>	<i>7 3/8"</i>	<i>62 3/4"</i>	<i>1</i>	<i>2 1/8" 2 3/8"</i>	<i>50 1/2"</i>	<i>3</i>
"	<i>1 5/8"</i>	<i>47 3/4"</i>	<i>1</i>	<i>8"</i>	<i>64"</i>	<i>1</i>	<i>2 3/8" 2 5/8"</i>	<i>51 1/2"</i>	<i>3</i>
"	<i>1 7/8"</i>	<i>47 7/8"</i>	<i>1</i>	<i>8 1/2"</i>	<i>64 1/2"</i>	<i>1</i>	<i>2 5/8" 3"</i>	<i>52 1/2"</i>	<i>3</i>

and size of Feed pumps *2. 8 1/2" x 13 1/2" x 24 Vertical Duplex.*  
 and size of Bilge pumps *1. 7 1/2" x 9" x 10. F. & B. 1. 14" x 11" x 12 Vertical duplex. Ballast 10" x 12" x 12 duplex.*  
 and size of Bilge suction in Engine Room *2. 3 1/2" 1-3" For. Water. 2-3" Aft. Siphon. 3-3" dia.*  
 In Holds, &c. *1 1/2" 1-3" No. 2. 2-3" No. 3. 2-3" No. 4. 2-3"*  
 Bilge Injections *2-3" 1-2 1/2" in Cofferdam. 1-3" in aft. Cofferdam.*  
 Are the bilge suction pipes fitted with roses *Yes.* Are the roses in Engine room always accessible *Yes.*  
 Are the bilge suction pipes fitted with valves *Yes.* Are the valves or cocks *Both.*  
 Are the discharge pipes above or below the deep water line *Along the side.*  
 Are the blow off cocks fitted with a spigot and brass covering plate *Yes.*  
 How are they protected *Yes.*  
 Are the bilge suction pipes, cocks, and valves arranged so as to prevent any communication between the sea and the bilges *Yes.*  
 Is it fitted with a watertight door *Yes.* worked from *Top of stateroom.*

**BOILERS, &c.**—(Letter for record *S.*) Manufacturers of Steel *Bethlehem Steel Company*  
 Heating Surface of Boilers *29784* Is Forced Draft fitted *Yes.* No. and Description of Boilers *6. Water Tube (B. & W. Type)*  
 Working Pressure *275 lbs.* Tested by hydraulic pressure to *550 lbs.* Date of test *April 7, 27.* No. of Certificate *216*  
 Can each boiler be worked separately *Yes.* Area of fire grate in each boiler *Oil fuel.* No. and Description of Safety Valves to *Yes.*  
 boiler *One 4" duplex.* Area of each valve *12.50 sq. ft.* Pressure to which they are adjusted *275 lbs.* Are they fitted with easing gear *Yes.*  
 Greatest distance between boilers or uptakes and bunkers or woodwork *3'-0"* Mean diameter of tubes *4 1/2"* Length *7'-11 1/2"* Material of shell plates *Steel*  
 Thickness *2 1/32"* Range of tensile strength *60-70000 lbs.* Are the shell plates welded or flanged *No.* Descrip. of riveting: cir. seams *D. R. L. A. P.*  
 seams *T. R. D. B. S.* Diameter of rivet holes in long. seams *29/32"* Pitch of rivets *2 1/2" 9 1/4"* Joints of plates: width of butt straps *16 1/4" 3 1/8"*  
 Percentage of strength of longitudinal joint *plates* Working pressure of shell by rules *Size of manhole in shell*  
 of compensating ring *No. and Description of Furnaces in each Boiler* Material *Outside diameter*  
 of plain part *top* Thickness of plates *crown* Description of longitudinal joint *No. of strengthening rings*  
*bottom* *bottom*  
 Working pressure of furnace by the rules *Combustion chamber plates: Material* Thickness: Sides *Back* Top *Bottom*  
 If stays are fitted with nuts or riveted heads *Working pressure by rules* End plates in steam space  
 Diameter at smallest part *Area supported by each stay* Working pressure by rules *Material of stays*  
 Thickness *Pitch of stays* How are stays secured *Working pressure by rules* Material of Front plates at bottom  
 Area supported by each stay *Working pressure by rules* Material of Lower back plate *Thickness* Greatest pitch of stays *Working pressure of plate by rules*  
 Material of tube plates *Thickness: Front* Back *Mean pitch of stays*  
 Working pressures by rules *Girders to Chamber tops: Material* Depth and  
 Length as per rule *Distance apart* Number and pitch of stays in each  
 Steam dome: description of joint to shell *Pitch of rivets*  
 Description of longitudinal joint *Diameter of rivet holes*  
 Crown plates: Thickness *How stayed*

009481-009492-0014

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Tested by Hydraulic Pressure to 550 lb.

*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 285 lb

### Is Easing Gear fitted

IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded? ✓

SPARE GEAR.

*State the articles supplied:-*

SPARE GEAR. State the articles supplied:—Two bolts & nuts for each size of motor bearing: 2 bolts & nuts for main bearing: two bolts & nuts for each pinion bearing. 1/20" total number bolts & nuts for gear case joint: 1/20" total number bolts & nuts for each turbine casing joint: two pinions: two thermometers for oil circulating system: set of bearing bushes for gear wheel and pinion shafts: set of packing rings for each size of motor stand: one set of pads for Kingston Thrust: one set of Morse turbine thrust: one set of liners of various thicknesses: one set of safety valve springs: one set of feed, cold & lubricating pump valves: one bracket stand for lubricating oil pumps: 50 lbs for main condenser: 50 lbs for pump: 25 lbs for air condenser: inspection shaft, with rod, brass packing rings for main circulating pump: One set

*The foregoing is a correct description.*

*Manufacturer.*

Dates of Survey while building

During progress of work in shops --	1926. Apr. 25. May 13. 19. 22. June 1. 2. 8. 23. 24. July 8. 17. 20. Aug. 5. 6. 9. 13. Sept. 2. 3. 15. 23. 24. Oct. 10. 18. 29. 30. Nov. 5.
During erection on board vessel --	Dec. 20. 29. 30. 1927. Jan. 10. 12. 24. 25. Feb. 3. 10. 11. 17. Mar. 11. 23. 24. 29. 31. April 4. 6. 7. 9. 14. 15.
Total No. of visits	52.

Is the approved plan of main boiler forwarded herewith

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Dates of Examination of principal parts—Casings		8/6/27	28/7/27	Rotors	9/11/26	Blading	5/11/26	Gearing	5/11/26
Rotor shaft	15/9/26	5/11/26	Thrust shaft	19/5/26	Tunnel shafts	29/12/26	Screw shaft	6/8/26	Propeller
Stern tube	8/7/26	Steam pipes tested	7/4/27	Engine and boiler seatings	18/10/26	Engines holding down bolts	10/1/27		
Completion of pumping arrangements	29/12/26	Boilers fired	29/12/26	Engines tried under steam	3/3/27				

Main boiler safety valves adjusted 9/4/27 Thickness of adjusting washers 260K nuts fitted

Material and tensile strength of Rotor shaft *G. F. Steel 77500-76550 lbs.* Identification Mark on Do. *26, 8867, 195*

Material and tensile strength of Pinion shaft *Hi. Steel 23000 lbs.* Identification Mark on Do. *26.410.419.164*

Material of Wheel shaft *4140 Steel* Identification Mark on Do. *26.8866* Material of Thrust shaft *4140 Steel* Identification Mark on Do. *26.8866*

Material of Tunnel shafts *Steel* Identification Marks on Do. *26* <sup>8867</sup>/<sub>8866</sub> *105* Material of Screw shafts *Steel* Identification Marks on Do. *26* <sup>8886</sup>/<sub>8885</sub> *105*

Material of Steam Pipes	Steel tubing	Test pressure	263 lbs
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Is an installation fitted for burning oil fuel *Yes* *at* Is the flash point of the oil to be used over 150°F *Yes*

Is the flash point of the oil to be used over 150 F.

Have the requirements of Section 43 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.)

The Boilers and Machinery of this Vessel have been constructed under Special Survey and in accordance with the Rules and approved plans. The materials (A.B. Steel) and workmanship are good and efficient and the hydrostatic test on boilers proved satisfactory. The Boilers & Machinery have now been efficiently fitted on board, tested under strain and proved to be in good working order. The oil fuel burning equipment complies with all the requirements of Section 35 of the Rules and is now in good, efficient, working order.

The case is respectfully Submitted for the notation of **L.M.C. 4-27** in the Register Book.

The amount of Entry Fee	...	£	:	:	} When applied for, May 10 1927
Special	...	\$780.00.			
Donkey Boiler Fee	...	£	:	:	} When received, May 27 1927
Travelling Expenses (if any)	£	:	:		

*P. Hudson.*  
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute NEW YORK MAY 18. 1927

Assigned +LMC. 4.27

CERTIFICATE WRITTEN 28/5/22

Note - F.D.  
CL  
6 W.T.B.  
Steam Engine - 275 lb ☐"

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