

REPORT ON MACHINERY.

No. 17480

Received at London Office

Date of writing Report

19

When handed in at Local Office

19

Port of

New York

MUR 3 NOV. 1919

No. in Survey held at

Kearny N.J.

Date, First Survey

22 Apr.

Last Survey

Sept. 22 1919

Reg. Book.

on the *Sin. Scr. St. St. "WINONA COUNTY"*

(Number of Visits)

Gross 6517
Tons Net 4045Master *Chr. Mikkelsen* Built at *Kearny N.J.* By whom built *Federal S. B. Co.*

When built 1919-9.

Engines made at *Indianapolis Ind.* By whom made *Midwest Engine Co.*

when made 1919-9

Boilers made at *Kearny N.J.* By whom made *Federal S. B. Co.*

when made 1919-9

Registered Horse Power *645.6* Owners *U.S. Shipping Board*Port belonging to *Kearny N.J.*Shaft Horse Power at Full Power *2800* Is Refrigerating Machinery fitted for cargo purposes *No.*Is Electric Light fitted *Yes.*TURBINE ENGINES, &c.—Description of Engines *Geared Turbines* *Turbine - No. 32794* *Gear - No. 42-1930* No. of Turbines *Two*

Diameter of Rotor Shaft Journals, H.P. *4"* L.P. *4"* Diameter of Pinion Shaft *5"*
 Diameter of Journals *5"* Distance between Centres of Bearings *59"* Diameter of Pitch Circle *75"*
 Diameter of Wheel Shaft *14 1/4" to 16 1/4"* Distance between Centres of Bearings *44"* Diameter of Pitch Circle of Wheel *15.5"*
 Width of Face *26"* Diameter of Thrust Shaft under Collars *11" 13 3/4" per approved plan.* Diameter of Tunnel Shaft *13"*
 Fitted with continuous one piece liner as per rule *14.23" 14.3"* Diameter of Propeller *17'0"* Pitch of Propeller *13'1"*
 No. of Screw Shafts *One* Diameter of same as fitted *14.25"* Diameter of Propeller *17'0"* Pitch of Propeller *13'1"*
 No. of Blades *Four* State whether Moveable *No.* Total Surface *77.17'* Diameter of Rotor Drum, H.P. *13'-16"* L.P. *22"* *HP 22 3/4 - 24 1/4*
 Thickness at Bottom of Groove, H.P. *Solid* L.P. *Solid* *HP 11/16 to 13/16* Revs. per Minute at Full Power, Turbine *3600* *1704-578* Propeller *90* *LP 19 1/2 - 22 3/4*

PARTICULARS OF BLADING.

	H. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF HP BLADES. LP	DIAMETER AT TIP. HP - L.P.	NO. OF ROWS. HP - L.P.
1ST EXPANSION	<i>5 7/8"</i>	<i>14 1/4"</i>	<i>6.</i>	<i>2 1/4"</i>	<i>26 1/2"</i>	<i>2</i>	<i>19 1/16" - 25 5/8"</i>	<i>27 3/8" - 28"</i>	<i>1. - 1.</i>
2ND	<i>13/16"</i>	<i>14 5/8"</i>	<i>6.</i>	<i>2 3/4"</i>	<i>27 1/2"</i>	<i>2</i>	<i>29 1/16" - 4 1/4"</i>	<i>28 5/8" - 29"</i>	<i>1. - 1.</i>
3RD	<i>1 1/16"</i>	<i>15 1/8"</i>	<i>5.</i>	<i>3 1/2"</i>	<i>29"</i>	<i>2</i>	<i>3 1/8"</i>	<i>5 3/4"</i>	<i>29" - 31"</i>
4TH	<i>1 3/8"</i>	<i>15 3/4"</i>	<i>5.</i>	<i>4 3/8"</i>	<i>30 3/4"</i>	<i>2</i>			
5TH	<i>1 1/8"</i>	<i>18 1/4"</i>	<i>3.</i>	<i>5"</i>	<i>32</i>	<i>4.</i>			
6TH	<i>17/16"</i>	<i>18 7/8"</i>	<i>3.</i>						
7TH	<i>17/8"</i>	<i>19 3/4"</i>	<i>3.</i>						
8TH	<i>2 3/8"</i>	<i>20 3/4"</i>	<i>3.</i>						

No. and size of Feed pumps *Two 10" x 7" x 24" Davidson type*No. and size of Bilge pumps *Three - 6" x 5 3/4" x 6" - 14" x 8 1/2" x 12" - 12" x 10 1/2" x 12"*No. and size of Bilge suction in Engine Room *Three - 3 1/2" Tunnel well, one 3"*In Holds, &c. *No. 1. One 3" No. 2. One 3" No. 3. Two 3" No. 4. Two 3"**No. 5. Two 3" & Two 3" Emergency screw-down non-return valves in Ford holds.*No. of Bilge Injections *One* size *10"* Connected to condenser, or to circulating pump *Yes* Is a separate Donkey Suction fitted in Engine Room & size *Yes 3 1/2"*Are all the bilge suction pipes fitted with roses *Yes* Are the roses 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*What pipes are carried through the bunkers How are they protected *Yes*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 *Top platform*BOILERS, &c.—(Letter for record *S.*) Manufacturers of Steel *Carnegie & Illinois Steel Co.*Total Heating Surface of Boilers *8934'* Is Forced Draft fitted *Yes* No. and Description of Boilers *3 S. E. Scotch Marine*Working Pressure *210 lbs. per sq. in.* Tested by hydraulic pressure to *315 lbs. per sq. in.* Date of test *15-7-19 - 17-7-19* No. of Certificates *235-236-237*Can each boiler be worked separately *Yes* Area of fire grate in each boiler *60.4'* No. and Description of Safety Valves toeach boiler *Two - 3 1/2" crane* Area of each valve *9.62'* Pressure to which they are adjusted *210 lbs. per sq. in.* Are they fitted with easing gear *Yes*Smallest distance between boilers or uptakes and bunkers or woodwork *14"* Mean dia. of boilers *15 1/2"* Length *11'6"* Material of shell plates *Steel*Thickness *1 1/16"* Range of tensile strength *60771680 lbs.* Are the shell plates welded or flanged *Yes* Descrip. of riveting: cir. seams *S. E. Lap*Long. seams *S. E. D. B. S.* Diameter of rivet holes in long. seams *15/8"* Pitch of rivets *9 3/8"* Lap of plates or width of butt straps *23 3/8"*Per centages of strength of longitudinal joint rivets *100.1* Working pressure of shell by rules *237 lbs. per sq. in.* Size of manhole in shell *23" x 19"*Size of compensating ring *38 x 34 x 1 1/4"* No. and Description of Furnaces in each Boiler *3 Morrison* Material *Steel* Outside diameter *49 9/16"*Length of plain part top *Yes* Thickness of plates crown *2 1/32"* Description of longitudinal joint *Welded* No. of strengthening rings *Corr.*Working pressure of furnace by the rules *217 lbs. per sq. in.* Combustion chamber plates: Material *Steel* Thickness: Sides *5/8"* Back *5/8"* Top *5/8"* Bottom *1"*Pitch of stays to ditto: Sides *6 1/2" x 7"* Back *6 1/2" x 7"* Top *8" x 7"* If stays are fitted with nuts or riveted heads *Riv. heads* Working pressure by rules *240 lbs.*Material of stays *Steel* Diameter at smallest part *1.26"* Area supported by each stay *6 1/2" x 7"* Working pressure by rules *221 lbs.* End plates in steam spaceMaterial *Steel* Thickness *1 3/16"* Pitch of stays *17 1/2" x 16"* How are stays secured *Dbl. nuts* Working pressure by rules *225 lbs.* Material of stays *Steel*Diameter at smallest part *3"* Area supported by each stay *17 1/2" x 16"* Working pressure by rules *227 lbs.* Material of Front plates at bottom *Steel*Thickness *25/32"* Material of Lower back plate *Steel* Thickness *1 1/16"* Greatest pitch of stays *13" x 7"* Working pressure of plate by rules *235 lbs.*Diameter of tubes *2 3/4"* Pitch of tubes *3 3/4" x 4"* Material of tube plates *Steel* Thickness: Front *25/32"* Back *25/32"* Mean pitch of stays *12" x 7 1/2"*Pitch across wide water spaces *13"* Working pressures by rules *230 lbs.* Girders to Chamber tops: Material *Steel* Depth andthickness of girder at centre *10" x 13 1/4"* Length as per rule *2'10"* Distance apart *8"* Number and pitch of stays in each *Four - 7"*Working pressure by rules *262 lbs.* Steam dome: description of joint to shell *0%* of strength of joint *2019* DiameterThickness of shell plates *Material* Description of longitudinal joint *How stayed* Diameter of rivet holes *Pitch of rivets*Working pressure of shell by rules *Crown plates: Thickness* How stayed

SUPERHEATER. Type *Tubular*. Date of Approval of Plan *26-12-17*. Tested by Hydraulic Pressure to *630 lbs. per sq. in.*
Date of Test *FINAL - 29-8-19*. Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *Yes*
Diameter of Safety Valve *1"*. Pressure to which each is adjusted *225 lbs. per sq. in.* Is Easing Gear fitted *No*

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

SPARE GEAR. State the articles supplied:—*Two studs & nuts H.L.P. Rotor bearings. Two studs & nuts each size Pinion & Gear bearings. Complete set of coupling bolts. Set of bearing bushes for each, Rotor, Pinion & Gear shaft. Set of shoes for H.P. L.P. & main thrust bearings. Set of liners. Set of Labyrinth rings (Packing). Three carbon packing rings. One H.S. Pinion. 50% of Turbine & Gear casing joints, bolts, studs & nuts. Set of Bilge Feed & Lub. oil pump valves. Two thermometers for oil circ. system. Bkt. & rod Lub. oil pump. Escape valves springs for each size used. S.S. Propeller. number of Boiler, Superheater, Oil-cooler & Condenser tubes. Two Boiler check valves. Quantity of assorted bolts, studs, nuts, bars & plates of iron & steel.*

The foregoing is a correct description,
The Federal Shipbuilding Co., Ltd. Ch. Sigs. Manufacturer.

Dates of Survey while building { During progress of work in shops -- } *1919, Apr 22, May 23, Jun 4, Jul 28, 17, 18, 19, 22, 23, 24, 25, 28, 31, Aug 5, 6, 13, 15, 20, Sep 5, 8, 9, 11, 12, 17, 22, 23, 24, 25*
{ During erection on board vessel --- }
Total No. of visits *29* Is the approved plan of main boiler forwarded herewith *Retained for Reference.*

Dates of Examination of principal parts—Casings *✓* Rotors *✓* Blading *✓* Gearing *✓*
Rotor shaft *✓* Thrust shaft *✓* Tunnel shafts *6-8-19* Screw shaft *6-8-19* Propeller *6-8-19*
Stern tube *14-7-19* Steam pipes tested *22-9-19* Engine and boiler seatings *22-7-19* Engines holding down bolts *24-9-19*
Completion of pumping arrangements *22-9-19* Boilers fixed *5-9-19* Engines tried under steam *22-9-19*
Main boiler safety valves adjusted *23-9-19* Thickness of adjusting washers *not used.*
Material and tensile strength of Rotor shaft *✓* Identification Mark on Do. *✓*
Material and tensile strength of Pinion shaft *✓* Identification Mark on Do. *✓*
Material of Wheel shaft *✓* Identification Mark on Do. *1391-W.L.* Material of Thrust shaft *✓* Identification Mark on Do. *✓*
Material of Tunnel shafts *Steel* Identification Marks on Do. *435-C.F.M.* Material of Screw shafts *Steel* Identification Marks on Do. *435-C.F.M.*
Material of Steam Pipes *Steel* ✓ Test pressure *630 lbs. per sq. in.*
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 *Yes.* If so, state name of vessel *S.S. Belfort. N.Y. Report.*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The Turbines have been constructed under American Bureau of Shipping Survey. The Gears have been constructed under Amer. Bureau of Sh. survey & materials tested by Lloyds Surveyors. The Boilers have been constructed under Special Survey in accordance with approved plans (12-1-18). The materials & workmanship are good & efficient. On completion the Boilers satisfactorily withstood a hydrostatic test of 315 lbs. per sq. in. The whole of the machinery has now been efficiently placed on board & examined under working conditions & proved satisfactory. The case is submitted for the notation of L.M.C. (1919-9.) in the Register Book.*

It is submitted that this vessel is eligible for THE RECORD LMC 9. 19. F.D. 2 Steam Turbines geared to 1 Screw Shaft.

The amount of Entry Fee ... *£ 15.00* :
Special ... *£ 261.40* :
Donkey Boiler Fee ... *£* :
Travelling Expenses (if any) *£* :
When applied for, *7 Oct 1919*
When received, *24 11 19*

C. F. Macdonald.
Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

Assigned

New York OCT - 7 1919

L.M.C. 9. 19

MACHINERY CERTIFICATE
PART 3. 11. 19



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Foundation