

# REPORT ON MACHINERY.

No. 14702

Received at London Office

Date of writing Report July 29<sup>th</sup> 1918 When handed in at Local Office Aug 5<sup>th</sup> 1918 Port of New York & Vancouver B.C.

No. in Survey held at Vancouver, B.C. Date, First Survey April 7<sup>th</sup> 1917 Last Survey July 27<sup>th</sup> 1917

Entry on the Steel Screw Steamer, "Alaska" (Number of Visits 5) Tons Gross 5825.47 Net 4201.41

Master W. Hall Built at Vancouver, B.C. By whom built J. Coughlin & Sons When built 1918

Engines made at Horken By whom made W. A. Fletcher & Co. when made 1914-12

Boilers made at Vancouver, B.C. By whom made J. Coughlin & Sons when made 1918

Registered Horse Power 2400 Owners Knut Knutson Port belonging to Norway

Shaft Horse Power at Full Power 2500 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

TURBINE ENGINES, &c.—Description of Engines Parsons compound double reduction Gear No. of Turbines 2

Diameter of Rotor Shaft Journals, H.P. 5 1/2" L.P. 6" Diameter of Pinion Shaft 5 1/2" - 7 intermediate

Diameter of Journals 4 1/2" 4 1/2" Distance between Centres of Bearings 34 1/2" 31 1/2" Diameter of Pitch Circle 21 3/4"

Diameter of Wheel Shaft 5 1/2" Distance between Centres of Bearings 45 1/2" main Gear Diameter of Pitch Circle of Wheel 21 1/2" 21 1/2"

Width of Face 14 1/2" 14 1/2" Diameter of Thrust Shaft under Collars 1 1/2" 1 1/2" Diameter of Tunnel Shaft as per rule 12 1/2" 12 1/2"

No. of Screw Shafts 1 1/2" Spare Diameter of same as fitted 1 1/2" 1 1/2" Diameter of Propeller 17" Pitch of Propeller 11" 9"

No. of Blades 47 1/2" State whether Moveable yes Total Surface 81 1/2" sq. ft. Diameter of Rotor Drum, H.P. 14 1/2" 14 1/2" L.P. 15 1/2" 15 1/2" astern 21"

Thickness at Bottom of Groove, H.P. 1/2" L.P. 1/2" Astern 1/2" Revs. per Minute at Full Power, Turbine 2250 Propeller 100

## 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 BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION	1 1/2"	16 1/2"	16	1 1/2"	34 1/2"	3	1 1/2"	21 1/2"	6
2ND	1"	16 1/2"	16	1 1/2"	35 1/2"	3	1 1/2"	22 1/2"	6
3RD	1 1/2"	14 1/2"	16	1 1/2"	34 1/2"	3	1 1/2"	14	6
4TH	1 1/2"	24 1/2"	4	1 1/2"	39 1/2"	3	1 1/2"	18 1/2"	3
5TH	1 1/2"	25	4	1 1/2"	42	2	1 1/2"	18 1/2"	3
6TH	1 1/2"	26	4	1 1/2"	45	2			
7TH				1 1/2"	45	2			
8TH				1 1/2"	45	2			

No. and size of Feed pumps 2, 12" x 8" x 16" Vertical

No. and size of Bilge pumps 2, 1, 12" x 8 1/2" x 12" 1, 8" x 5" x 10"

No. and size of Bilge suction in Engine Room Main Bilge 3, 3 1/2" Engine Room 2, 3 1/2" in Hockhold

Main Pipe 6" dia. In Holds, &c. #1, 2, 3 1/2" #2, 4, 3 1/2" #3, 2, 3 1/2" #4, 2-3 1/2"

Tunnel Well 1, 3 1/2" Boiler Room 2, 3 1/2" Engine Room 2, 3 1/2"

No. of Bilge Injections 1 sizes 10" Connected to condenser, or to circulating pump Fire Pump Is a separate Donkey Suction fitted in Engine Room & size, 2, 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 Valves & Cocks

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 none 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 Upper Deck

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Illinois Steel Co. Ingersoll Steel Co. B. Pa.

Total Heating Surface of Boilers 2670 Is Forced Draft fitted no No. and Description of Boilers 3, 3 furnaces, Scotch Marine

Working Pressure 190 lbs Tested by hydraulic pressure to 285 lbs Date of test 24 & 25 May No. of Certificate 10-11-12

Can each boiler be worked separately yes Area of fire grate in each boiler 60 sq. ft. No. and Description of Safety Valves to

each boiler 2 Spring Loaded Area of each valve 19 1/2 sq. ft. Pressure to which they are adjusted 190 Are they fitted with easing gear yes

Smallest distance between boilers or uptakes and bunkers or woodwork 21" Mean dia. of boilers 14-9 7/8 Length 11-5 1/2 Material of shell plates Steel

Thickness 1 1/2" Range of tensile strength 60,000 71,680 Are the shell plates welded or flanged no Descrip. of riveting: cir. seams Double Lap

long. seams Double Butt Diameter of rivet holes in long. seams 1 1/2" Pitch of rivets 8-604 Lap of plates or width of butt straps 22 1/2 & 14 1/2

Per centages of strength of longitudinal joint rivets 97.5 plates 93.29 Working pressure of shell by rules 208-9 Size of manhole in shell 12" x 16"

Size of compensating ring 36" x 36" No. and Description of Furnaces in each Boiler 3 Morrisons Material Steel Outside diameter 48 3/16"

Length of plain part top 4" crown 19 1/2 Description of longitudinal joint 1 No. of strengthening rings 1

bottom 7" thickness of plates bottom 19 1/2 Working pressure of furnace by the rules 194-9 Combustion chamber plates: Material Steel Thickness: Sides 16" Back 16" Top 9/16" Bottom 7/8"



SUPERHEATER. Type *Fosters* Date of Approval of Plan *September 15<sup>th</sup> 1917* Tested by Hydraulic Pressure to *630 lbs.* Rpt. 1

Date of Test *14-9-17* Is a Safety Valve fitted to each Section of the Superheater which can be shut off from the Boiler *Yes*

Diameter of Safety Valve *3"* Pressure to which each is adjusted *190 lbs* Is Easing Gear fitted *No.*

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

SPARE GEAR. State the articles supplied: *Turbine Thrust Bearing, 20 Stud & Nuts for cover joints, 20 Studs & Nuts for Gear Base Joints, 1/2 set Kingsbury Thrust Shoes, Spare Rotor Gland Packing Strip, 1 set Spare Feed Pump Valves, 1 set spare lubricating pump valves, 1 spare bucket & rod for lubricating oil pumps, 3 spare check valves, 1 spare thermometer for oil cooler, 1 spare propeller blades, 1 spare tail shaft, 1 set spare coupling bolts, 6 spare boiler tubes, 6 spare superheater coils, 40 Condenser tubes, 200 spare ferrules, 2 spare safety valve springs, cylinder relief valve spring, 10 spare coupling bolts for flexible coupling, spare grate & side bars & deadplate for boilers, Assorted bolts, nuts & plates.*

The foregoing is a correct description,

*Gloughlan & Sons*

Manufacturer.

*H. H. Taylor* Chief Engineer.

Dates of Survey while building { During progress of work in shops -- *1917: Apr. 7, 12, 18, 20, 23, 24, 27, May 22, 26, 29, June 5, 8, 11, Sept 20, 27, Oct 3, 8, Nov. 27, 28*  
During erection on board vessel --- *1918: Jan. 2, 8, 14, 17, 19, 24, 30, Feb. 14, 20, 26, Mar. 1, 8, 15, 16, 18, April, 1, 4, 10, 15, 23, 25, May 1, 9, 22, 24, 25, June 6, 10, 22, 29, July 12<sup>th</sup>.*  
Total No. of visits *51.*

Is the approved plan of main boiler forwarded herewith *Yes.*

Dates of Examination of principal parts—Casings *27 Sept 17* Rotors *14 May 17* Blading *Nov. 2-17* Gearing *606, 21/5/17 H.R.M.*

Rotor shaft *Helphax* Thrust shaft *606, 21/3/17, H.R.M.* Tunnel shafts *15/1/18 H.R.M.* Screw shaft *15/1/18 L.N.* Propeller *Feb 26/18.*

Stern tube *Jan 10<sup>th</sup>* Steam pipes tested *June 20<sup>th</sup>* Engine and boiler seatings *March 16<sup>th</sup>* Engines holding down bolts *June 7<sup>th</sup>*

Completion of pumping arrangements *May 14<sup>th</sup>* Boilers fired *June 13<sup>th</sup>* Engines tried under steam *June 28<sup>th</sup> 429<sup>th</sup>*

Main boiler safety valves adjusted *June 22<sup>nd</sup>* Thickness of adjusting washers *Lock nuts used.*

Material and tensile strength of Rotor shaft *per Rotor shaft 63450 - 71681 H.R.M.* Identification Mark on Do. *2808 H.R.M.*

Material and tensile strength of Pinion shaft *Steel* Identification Mark on Do. *Gearing Enclosed marks inaccessible*

Material of Wheel shaft *Steel* Identification Mark on Do. *606 21/3/17 H.R.M.* Material of Thrust shaft *Steel* Identification Mark on Do. *606 - 21/3/17*

Material of Tunnel shafts *Steel* Identification Marks on Do. *18/12/17 L.N.* Material of Screw shafts *Steel* Identification Marks on Do. *162 - 10-5-18*

Material of Steam Pipes *Copper & Steel* Test pressure *500 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, etc.)

*The turbines have been constructed under special survey and in accordance with plans submitted and approved by the committee in the letter. The material have been tested by the rules and the workmanship of good quality and have been dispatched to Vancouver, B.C. for installation.*

The amount of Entry Fee ... £  
Special ... £  
Donkey Boiler Fee ... £  
Travelling Expenses (if any) £

When applied for.

When received.

Committee's Minute

Assigned

TUE. 17 SEP. 1918