REC'D NEW YORK Aug. 13-1918.

pt. 4a.

REPORT ON MACHINERY. No. 642

Received at London Office.....

Date of writing Report July 29th 1918 When handed in at Local Office August 5th 18 Port of New York and Vancouver. B.C.

No. in Reg. Book. Survey held at Vancouver, B.C. Date, First Survey 7th April 1917. Last Survey 27th July 1918 (Number of Visits 32)

Entry on the Steel Screw Steamer, "Alaska". Tons Gross 5825·47 Net 4201·41

Master W. Hall Built at Vancouver, BC By whom built J. Coughlan & Sons When built 1918

Engines made at Hoboken, N.J. By whom made W & A Fletcher & Co when made 1917

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

Registered ~~Horse Power 2750~~ NOMINAL 494 Owners Knut Knutsen Port belonging to Conway.

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 Geared Turbines 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 1st Pinion inter gear 4 1/2" 7 3/8" 14" Distance between Centres of Bearings 1st pinion inter 34 1/2 38 1/2 Diameter of Pitch Circle 21 3/4

Diameter of Wheel Shaft 1st set 13" at coupling 14" at pinion mean gear Distance between Centres of Bearings 45 1/2 main gear Diameter of Pitch Circle ~~of Wheel~~ 104, 14", 141, 76 1/2 mean

Width of Face 14, 14x26, 26" Diameter of Thrust Shaft under Collars Kingsbury Thrust Diameter of Tunnel Shaft as per rule 12" 0.50 as fitted 12" 5/16"

No. of Screw Shafts 1 & 1 Spare Diameter of same as per rule 13·72 S.C.L. as fitted 14" under liner 15 1/2 over. Diameter of Propeller 17-6" Pitch of Propeller 11·2" Joints burned see Nyk 21/9/18.

No. of Blades 4 & 1 Spare State whether Moveable Yes Total Surface 81 1/2 Sq ft. Diameter of Rotor Drum, H.P. 14" 23" L.P. 31 1/2 astern 21"

Thickness at Bottom of Groove, H.P. Solid L.P. Solid Astern Solid Revs. per Minute at Full Power, Turbine 2200 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	11/16"	16 1/4"	16	1 1/2"	34 1/2	3	1/8	21 3/4	6
2nd "	1"	16 3/8"	16	2 1/8	35 3/4	3	3/4	22 1/2	6
3rd "	1 3/8"	17 1/8	16	3	37 1/2	3	1 1/2	24	6
4th "	7/8"	24 1/4	7	4 1/4	39 1/2	3	2 1/8	25 1/4	3
5th "	1 1/4"	25"	7	6	42	2	2 1/8	25 1/4	3
6th "	1 1/4"	26	7	7 1/2	46"	2			
7th "				7 1/2	45"	2			
8th "									

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 6" x 10"

No. and size of Bilge suctions in Engine Room Main Bilge 3 - 3 1/2" Engine Room 2 - 3 1/2" in stokehold. Main pipe 6" diam 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 Circ 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 and 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

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. 8010 ft) Manufacturers of Steel Illinois Steel Co, Midvale Steel Co, Co, Pa. 3 SE

Total Heating Surface of Boilers 2670 Is Forced Draft fitted Yes No. and Description of Boilers 3 - Cylindrical Scotch Marine

Working Pressure 190 lbs Tested by hydraulic pressure to 285 lbs Date of test 24th & 25th May No of Certificates D. M. 10-11-12 S.E. 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 in Pressure to which they are adjusted 190 lbs 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 7/16" Range of tensile strength 60,000, 71,680 Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Dble Lap

long. seams Triple Riv Dble Butt Diameter of rivet holes in long. seams 1 7/16" Pitch of rivets 8·604" Lap of plates or width of butt straps 22 1/2" x 14 1/2"

Per centages of strength of longitudinal joint rivets 97·6 plates 83·29 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 Morisons Material Steel Outside diameter 48 3/16"

Length of plain part top 4" bottom 7" Thickness of plates crown 19/32 bottom 19/32 Description of longitudinal joint Welded No. of strengthening rings

Working pressure of furnace by the rules 195·9 Combustion chamber plates: Material Steel Thickness: Sides 9/16 Back 9/16 Top 9/16 Bottom 7/8"

Pitch of stays to ditto: Sides 7 3/16" Back 7 3/32 7 1/8" Top 7 1/2" If stays are fitted with nuts or riveted heads Nuts Working pressure by rules 194

Material of stays Steel Diameter at smallest part 1·746 Area supported by each stay 56·7 Working pressure by rules 194 End plates in steam space

Material Steel Thickness 1 1/16" Pitch of stays 16 1/4" How are stays secured Nuts Working pressure by rules 191·5 Material of stays Steel

Diameter at smallest part 5·939 Area supported by each stay 264·46 Working pressure by rules 232·9 Material of Front plates at bottom Steel

Thickness 3/4" Material of Lower back plate Steel Thickness 3/4" Greatest pitch of stays 15·13 x 7 1/2 Working pressure of plate by rules 222

Diameter of tubes 3" Pitch of tubes 4" x 4 1/8" Material of tube plates Steel Thickness: Front 3/4" Back 3/4" Mean pitch of stays 10 3/16"

Pitch across wide water spaces 13" Working pressures by rules 212 Girders to Chamber tops: Material Steel Depth and

thickness of girder at centre 10" x 1 1/2" Length as per rule 34" Distance apart 7 1/2" Number and pitch of stays in each 3 at 7 1/2"

Working pressure by rules 236 Steam dome: description of joint to shell ~ % of strength of joint ~ Diameter ~

Thickness of shell plates Material Description of longitudinal joint Diameter of rivet holes Pitch of rivets

Working pressure of shell by rules ~ Crown plates: Thickness ~ How stayed ~

SUPERHEATER. Type Fosters Date of Approval of Plan Sept^r 16^th 1917 Tested by Hydraulic Pressure to 630 lbs.

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 Yes

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

SPARE GEAR. State the articles supplied:—Turbine Thrust Bearing. 1/20 Studs & nuts for cover joints, 1/20 studs & nuts for gear case 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, Spare thermometer for oil cooler, 1 spare propeller blade, 2 spare tail shafts, 1 set spare coupling bolts, 6 spare boiler tubes, 6 spare Superheater coils H.P. 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,

Houghton & Sons Manufacturer.

H B Tay Lt. Chief Engineer.

Dates of Survey while building — During progress of work in shops: 1917: Apl 7-12,18,20,23,24,27 May 22,26,29 June 5,8,11, Sept 20,27, Oct 3,8, Nov 27,23, Ja

During erection on board vessel: Jan 8-14-17-19-26-30 Feb 14-20-26, Mar 1-8-15-16-18 Apl 1-4-10-15-23-25, May 1-9-22-24-25 Jun

Total No. of visits 52 Is the approved plan of main boiler forwarded herewith Yes

June 10-20-22-29, July 17th 27th " " " donkey " " " ✓

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

Rotor shaft 7 Fletcher Hoboken Thrust shaft 606-21-3-17 H.R.M. Tunnel shafts 15-1-18 L.M. 8-12-17 Screw shafts 15-1-18 L.M. 10-5-18 spare Propeller Feb^y 24^th 18

Stern tube Jany 10^th Steam pipes tested June 20^th Engine and boiler seatings March 16^th Engines holding down bolts Jany 7^th

Completion of pumping arrangements May 14^th Boilers fixed June 13^th Engines tried under steam June 28^th - 29^th

Main boiler safety valves adjusted June 22^nd Thickness of adjusting washers Lock nuts used,

Material and tensile strength of Rotor shaft Open Hearth Steel 62730 - 71611 lbs Identification Mark on Do. 2808 H.J.S.

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 606-21-8-17

Material of Tunnel shafts Steel Identification Marks on Do. 15-1-18 L.M. 8-12-17 T.M. Material of Screw shafts Steel Identification Marks on Do {163-15-1-18 L.M. 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, &c. 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 despatched to Vancouver B.C. for installation

At Vancouver, The main boilers have been constructed under Special Survey and in accordance with plans submitted and approved by the Committee, The material have been tested by the rules and the workmanship of good quality, The engines and boilers have been installed under Special Survey and to the Society's Rules, The machinery ran smoothly and without heating during the whole of the Official trial run of 6 hours duration, & is eligible in my opinion to have the notation in the Register Book L.M.C.-7-18. B.S. -7-18.

(This Surveyors are requested not to write on or below the space for Committee's Minute.) Certificate (if required) to be sent to

		When applied for,
The amount of Entry Fee	$ 25 : 00 :	19
Special	$ 637 : 50 :	
Donkey Boiler Fee	£ : :	When received,
Travelling Expenses (if any)	$ 10 : 00 :	14/1/19 19 14-1-19

James Murdoch, Engineer Surveyor to Lloyd's Register of Shipping.

It is submitted that this vessel is eligible for THE RECORD. + LMC 7.18 FITTED FOR OIL FUEL 7.18 F.P. ABOVE 150°F. 2 STEAM TURBINES GEARED TO 1 SCREW SHAFT

11-9-18

Committee's Minute TUE 17 SEP 1918

Assigned + LMC 7.18 Fitted for oil fuel 7.18 F.P. above 150° F.

MACHINERY REC'D WRITTEN Rcopy 6/1/20