

REPORT ON MACHINERY

Received at London Office TUE. APR. 17 1923

Date of writing Report 9th April 1923 When handed in at Local Office

Port of Malmö

No. in Survey held at Helsingborg Date, First Survey 28th September 1922 Last Survey 19th March 1923

Reg. Book. 80809 on the Steel S.S. "SONJA," Helsingborgs Varf's A.B.'s Yard N^o 44 (Number of Visits 28) Tons { Gross 1828 Net 1038

Master Built at Vachholm By whom built A.B. Vachholmsvarvet When built 1923

Engines made at Stockholm Completed at Helsingborg by Helsingborgs Varf's A.B. By whom made Bergsunds Mek. Verkstad when made 1920-22

Boilers made at Stockholm Fitted on board at Helsingborg By whom made Bergsunds Mek. Verkstad when made 1920-22

Registered Horse Power Owners A.B. Transmarin Port belonging to Helsingborg

Nom. Horse Power as per Section 28 906 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes

ENGINES, &c.—Description of Engines Triple expansion No. of Cylinders 3 No. of Cranks 3

Dia. of Cylinders 19 1/4", 31 7/8", 51 3/16" Length of Stroke 35 7/16" Revs. per minute 105 Dia. of Screw shaft 11.5" as per rule 285 7/8" as fitted 292 7/8" Material of screw shaft Steel

Is the screw shaft fitted with a continuous liner the whole length of the stern tube No liner fitted Is the after end of the liner made water tight in the propeller boss If the liner is in more than one length are the joints burned If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive If two liners are fitted, is the shaft lapped or protected between the liners Bedewalls protecting gland fitted length of stern bush 1305 7/8"

Dia. of Tunnel shaft 9.71" as per rule 246 7/8" as fitted 246 7/8" Dia. of Crank shaft journals 10.19" as per rule 259 7/8" as fitted 260 7/8" Dia. of Crank pin 260 7/8" Size of Crank webs 290 x 180 Dia. of thrust shaft under collars 260 7/8" Dia. of screw 4100 7/8" Pitch of Screw 410 7/8" No. of Blades 4 State whether moveable No Total surface 13.29 square metres

No. of Feed pumps 2 Diameter of ditto 79.5 7/8" Stroke 382 7/8" Can one be overhauled while the other is at work Yes

No. of Bilge pumps 2 Diameter of ditto 79.5 7/8" Stroke 382 7/8" Can one be overhauled while the other is at work Yes

No. of Donkey Engines Three + donkey boiler feed. Sizes of Pumps Helsingborg 10", 10 1/4", 10" Patent original 6", 4", 5 1/2", 6" No. and size of Suctions connected to both Bilge and Donkey pumps In Engine Room Four - 2 1/2" diam. One 2 1/2" in tunnel well. In Holds, &c. Two - 2 1/2" diam. in each hold.

No. of Bilge Injections 1 sizes 6" Connected to condenser, or to circulating pump Yes Is a separate Donkey Suction fitted in Engine room & size Yes 5"

Are all the bilge suction pipes fitted with roses Yes Are the roses in Engine room always accessible Yes Are the sluices on Engine room bulkheads always accessible None

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 Above

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 engine room platform

BOILERS, &c.—(Letter for record S) Manufacturers of Steel Strömme's Bruks AB, Dejeffs & Lennemanns Bruks AB, Luleå.

Total Heating Surface of Boilers 2906 0' Is Forced Draft fitted Yes No. and Description of Boilers Two multitubular

Working Pressure 13 kg/cm² = 185 lbs/sq. in. Tested by hydraulic pressure to 330 lbs/sq. in. Date of test 7th, 18th, 26th, 1922 No. of Certificate 200 + 202

Can each boiler be worked separately Yes Area of fire grate in each boiler 69 0' No. and Description of Safety Valves to each boiler Two springloaded Area of each valve 5.94 0" Pressure to which they are adjusted 190 lbs/sq. in. Are they fitted with easing gear Yes

Smallest distance between boilers or uptakes and bunkers or woodwork 16" Mean dia. of boilers 3600 7/8" Length 3550 7/8" Material of shell plates Steel

Thickness 27 7/8" Range of tensile strength 44-50 kg/cm² Are the shell plates welded or flanged No Descrip. of riveting: cir. seams Double riveted long. seams Double butt straps Diameter of rivet holes in long. seams 28.5 7/8" Pitch of rivets 170 7/8" Lap of plates or width of butt straps 414 7/8"

Per centages of strength of longitudinal joint rivets 105 plate 83.25 Working pressure of shell by rules 191 lbs/sq. in. Size of manhole in shell 400 x 500 7/8"

Size of compensating ring Diam 900 7/8", 22 7/8" No. and Description of Furnaces in each boiler 2 Monitors Material Steel Outside diameter 1076 7/8"

Length of plain part top 2400 7/8" bottom 2400 7/8" Thickness of plates crown 17 7/8" Description of longitudinal joint Welded No. of strengthening rings None

Working pressure of furnace by the rules 231 lbs/sq. in. Combustion chamber plates: Material Steel Thickness: Sides 16.5 7/8" Back 16 7/8" Top 16.5 7/8" Bottom 20 7/8"

Pitch of stays to ditto: Sides 205 x 200 7/8" Back 200 x 200 7/8" Top 200 x 205 7/8" If stays are fitted with nuts or riveted heads Both No. Working pressure by rules 227 lbs/sq. in.

Material of stays Steel Area at smallest part 2.03 0" Area supported by each stay 64 0" Working pressure by rules 284 lbs/sq. in. End plates in steam space:

Material Steel Thickness 26 7/8" Pitch of stays 440 x 350 7/8" How are stays secured Double nuts & washers riveted outside of the plate Working pressure by rules 231 lbs Material of stays Steel

Area at smallest part 5.94 0" Area supported by each stay 239 0" Working pressure by rules 241 lbs Material of Front plates at bottom Steel

Thickness 26 7/8" Material of Lower back plate Steel Thickness 23 7/8" Greatest pitch of stays 375 x 200 7/8" Working pressure of plate by rules 240 lbs

Diameter of tubes 3" Pitch of tubes 108 7/8" Material of tube plates Steel Thickness: Front 26 7/8" Back 22 7/8" Mean pitch of stays 105 7/8"

Pitch across wide water spaces 380 7/8" Working pressures by rules 185 lbs/sq. in. Girders to Chamber tops: Material Steel Depth and thickness of girder at centre 215 7/8" - 2.22 7/8" Length as per rule 765 7/8" Distance apart 205 7/8" Number and pitch of stays in each Three - 200 7/8"

Working pressure by rules 245 lbs Steam dome: description of joint to shell % of strength of joint

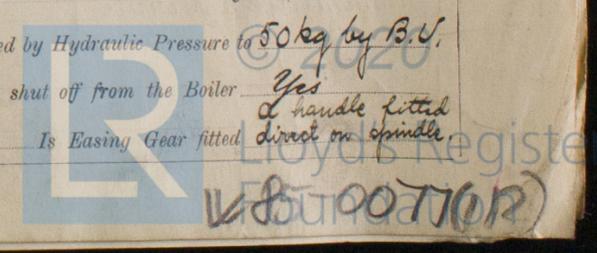
Diameter Thickness of shell plates Material Description of longitudinal joint Diam. of rivet holes

Pitch of rivets Working pressure of shell by rules Crown plates Thickness How stayed

SUPERHEATER. Type Smith's patent Date of Approval of Plan Tested by Hydraulic Pressure to 50 kg by B.V.

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

Diameter of Safety Valve 38 7/8" Pressure to which each is adjusted 190 lbs/sq. in. Is Easing Gear fitted Direct on spindle



IS A DONKEY BOILER FITTED? *Yes*

If so, is a report now forwarded? *Yes*

SPARE GEAR. State the articles supplied:— *2 connecting rod top end bolts and nuts, 2 connecting rod bottom end bolts and nuts, 2 main bearing bolts, 1 set of coupling bolts, 1 set of feed and bilge pump valves, 1 set of piston springs, a quantity of assorted bolts and nuts, Iron of various sizes, 1 propeller shaft, a number of cylinder cover pin bolts and slide valve chest pin bolts, 2 feed pump valves with seats, 2 bilge pump valves with seats, 2 air pump valves with seats, 1 set of ballast pump valves with seats, 1 set of donkey pump valves with seats, 1 set of boiler check valves with seats, 2 safety valve springs for main boilers, 2 ditto for donkey boiler, 10 ordinary boiler tubes, 3 stay tubes.*

The foregoing is a correct description,

HELSEINGBORGS WARFS AKTIEBOLAG

Penny & Møller Manufacturer

Dates of Survey while building: During progress of work in shops - *24/9, 27/9, 17/10, 18/10, 19/10, 19/10, 25/10, 27/10, 30/10, 10/11, 21/11, 21/11, 28/11, 28/11, 5/12, 1922, 9/1, 25/1, 16/2, 19/2, 26/2, 5/3, 8/3, 13/3, 14/3, 16/3, 17/3, 1923*
During erection on board vessel - *28/11/22*
Total No. of visits *28*

Is the approved plan of main boiler forwarded herewith *Approved* Retained under *1923*

Dates of Examination of principal parts—Cylinders *22/11/22* Slides *22/11/22* Covers *22/11/22* Pistons *22/11/22* Rods *22/11/22*

Connecting rods *22/11/22* Crank shaft *25, 27, 30/11/22* Thrust shaft *25/11/22* Tunnel shafts *22/11/22* Screw shaft *17/10/22* Propeller *17/10/22*

Stern tube *16/2/23* Steam pipes tested *16/2/23* Engine and boiler seatings *25/1/22, 25/1/23* Engines holding down bolts *22/11/22, 25/1/23*

Completion of pumping arrangements *13/3/23* Boilers fixed *25/1/23* Engines tried under steam *19/3/23*

Completion of fitting sea connections *13/3/23* Stern tube *17/10/22* Screw shaft and propeller *13/3/23*

Main boiler safety valves adjusted *16th March, 1923* Thickness of adjusting washers *Double nuts fitted*

Material of Crank shaft *Steel* Identification Mark on Do. *B* Material of Thrust shaft *Steel* Identification Mark on Do. *B*

Material of Tunnel shafts *Steel* Identification Marks on Do. *B* Material of Screw shafts *Steel* Identification Marks on Do. *LR 7127 V.B. 17.10.22*

Material of Steam Pipes *Steel* Test pressure *555 lbs/sq"*

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 duplicate of a previous case *No* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c. *These engines and boilers have*

been manufactured by Bergsunds Mek. Verkstad, Stockholm, under the supervision of the surveyors to Bureau Veritas Registry. The engines and boilers have been fitted on board at Helsingborg under our inspection and to our satisfaction.

The sea cocks and valves propeller and fastenings examined. The cylinders, pistons, slide valves with casings, covers and rods, engine framing thrust block, condenser and columns examined. The crank, thrust and intermediate shafting also the propeller shaft examined. The pumps, pipes and bilge connections examined. The pumping as per approved plan. The steam pipes tested to three times the working pressure. Feed pipes tested as per Rule.

The machinery of this vessel is worthy in our opinion to be classed in the Register Book of this Society with the notation of LMC 3.23. being in a good and safe working condition. Working pressure of the main boiler 185 lbs/sq" and working pressure of the donkey boiler 100 lbs/sq".

The amount of Entry Fee	... £	73:00	When applied for, 10/4 1923.
Special	... £	676:00	
Donkey Boiler Fee	... £	:	When received, 21/4 1923
Travelling Expenses (if any)	£	:	

V. Nilow, F.R.P., Palm, G. Jørgensen
Engineer Surveyors to Lloyd's Register of Shipping.

Committee's Minute *TUE 24 APR 1923*

Assigned *Lm 6 3.23*
F.D. O.G.

Vertical text on the left margin: Write "Bridge Sheer Strake" and "Upper Deck Sheer Strake" opposite the corresponding letter... THEK, CLEA, DC, DBL, POOF, SHOE, FORE, Uppr, Stri, Secd, Stri, FRA, REV, LOW, Bows, Topn, Rigg, Sals



Malmö

Continuation of Report No. 449 dated 9th April 1923 on the

machinery of the S.S. "SONJA," Helsingborgs Varf AB. S.S. N^o 44.

The scantlings of the main and donkey boilers checked and found in accordance with the approved plans.

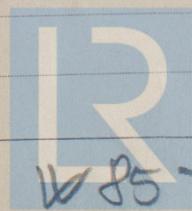
The main boilers have been tested with hydraulic pressure to 330 lbs per square inch. The donkey boiler has been tested with hydraulic pressure to 200 lbs per square inch.

Electric installation as per report for 13 attached.

Now done:

A large number of engine frame and column joint bolts with nuts renewed. The L.P. crank shaft renewed due to pores in the forward journal. The L.P. slide valve casing cover patched. The main engine pump guide stage, stated to have been broken away from condenser when moving engines, replaced by a new stage satisfactorily secured.

All safety valves adjusted under steam, the boilers found tight and the machinery found working satisfactorily during the trial trip.



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W 85-0071(2/2)