

# REPORT ON STEAM RECIPROCATING ENGINE MACHINERY.

Received at London Office

Date of writing Report 1st Sept. 1949 When handed in at Local Office 15 Oct. 1949 Port of Oslo

No. in Survey held at Tredrikstad Date, First Survey 9/9-48 Last Survey 2/9 1949

Reg. Book 40024 on the steel single screw steamer "Solviken" (Number of Visits 27)

Built at Tredrikstad By whom built As Tredrikstad Mek. Verksted Yard No. 326 Tons (Gross 3112.64 Net 1709.39)

Engines made at Tredrikstad By whom made As Tredrikstad Mek. Verksted Engine No. 1167 When built 1949

Boilers made at Tredrikstad By whom made As Tredrikstad Mek. Verksted Boiler No. 1521-1522 When made 1949

Registered Horse Power 420 Owners Wallin & Co, As Port belonging to Bergen

Nom. Horse Power as per Rule MN 508 Is Refrigerating Machinery fitted for cargo purposes no Is Electric Light fitted yes

Trade for which vessel is intended General Cargo - Vessel intended for China Coast.

ENGINES, &c. Description of Engines Four crank double compound. Revs. per minute ab. 100

Dia. of Cylinders 2x450mm, 2x1080mm. Length of Stroke 985mm No. of Cylinders 4 No. of Cranks 4

Crank shaft, dia. of journals as per Rule 306.67 Crank pin dia. 336mm Mid. length breadth 540mm. Thickness parallel to axis 208mm.

Intermediate Shafts, diameter as fitted 295mm. Crank webs Mid. length thickness 208mm. Thickness around eye-hole 154mm.

Tube Shafts, diameter as per Rule 306.67mm. Thrust shaft, diameter at collars as fitted 334mm.

Screw Shaft, diameter as per Rule 322.77mm as fitted 334mm. Is the shaft fitted with a continuous liner Yes

Bronze Liners, thickness in way of bushes as per Rule 17.4mm. Thickness between bushes as per Rule 13.1mm. Is the after end of the liner made watertight in the propeller boss Yes

as fitted 18.5mm. as fitted 15mm.

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner Yes

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 Yes

If two liners are fitted, is the shaft lapped or protected between the liners Yes Is an approved Oil Gland or other appliance fitted at the after end of the tube Yes

Propeller, dia. 14.5' Pitch 15.37' No. of Blades 4 RH. Material Mang. Bronze Length of Bearing in Stern Bush next to and supporting propeller 1675mm.

Feed Pumps worked from the Main Engines, No. 2 Diameter 100mm Stroke 100mm Can one be overhauled while the other is at work Yes

Bilge Pumps worked from the Main Engines, No. 2 Diameter 100mm Stroke 100mm Can one be overhauled while the other is at work Yes

Feed Pumps No. and size two simplex (240x175x530)mm Pumps connected to the Main Bilge Line No. and size one 9x9x10", and two 6x6x6", all duplex pumps.

Ballast Pumps, No. and size one duplex 9x9x10" Lubricating Oil Pumps, including Spare Pump, No. and size 1

Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected both to Main Bilge Pumps and Auxiliary Bilge Pumps: - In Engine and Boiler Room three 2 1/2" 63mm

In Pump Room Yes In Holds, &c. Fore hold two 89x2 two 63mm, cofferdam two 57mm, chainlocker one 57mm, aft hold two 89x2 three 63mm, tunnel Well one 63mm.

Main Water Circulating Pump Direct Bilge Suctions, No. and size one 220mm. Independent Power Pump Direct Suctions to the Engine and/or Boiler Room Bilges, No. and size one 108 & one 95mm.

Are all the Bilge Suction Pipes in holds and tunnel well fitted with strum-boxes Yes

Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges Yes

Are all Sea Connections fitted direct on the skin of the ship Yes Are they fitted with 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 Overboard Discharges 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 pass through the bunkers none How are they protected Yes

What pipes pass through the deep tanks Yes Have they been tested as per Rule Yes

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times Yes

Is the arrangement of Valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another Yes Is the Shaft Tunnel watertight Yes Is it fitted with a watertight door Yes worked from Yes

MAIN BOILERS, &c. (Letter for record 30/11/46, 23/1/47) Total Heating Surface of Boilers 578.8m<sup>2</sup> + 218.2m<sup>2</sup> = 793.3m<sup>2</sup>

Which Boilers are fitted with Forced Draft both Which Boilers are fitted with Superheaters both 109.2m<sup>2</sup> heating surface of each

No. and Description of Boilers two cylindrical Scotch type Working Pressure 15.5 kg/cm<sup>2</sup>

IS A REPORT ON MAIN BOILERS NOW FORWARDED? Yes

IS A DONKEY BOILER FITTED? no If so, is a report now forwarded? Yes

Can the donkey boiler be used for other than domestic purposes Yes

PLANS. Are approved plans forwarded herewith for Shafting 30/11/46, 23/1/47 Main Boilers 21/1/47 Auxiliary Boilers Yes Donkey Boilers Yes

(If not state date of approval)

Superheaters 18/3/47 General Pumping Arrangements 24/6/48 Oil fuel Burning Piping Arrangements 27/7/48, 23/2/49

## SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes

State the principal additional spare gear supplied 1 screw shaft with bronze liners

For main engine: 1 set rings for HP piston valve

2 " " " HP piston

3 complete rings for LP piston with extra springs.

1 HP piston rod

20 condenser tubes

18 bolts & nuts for cyl. covers etc.

20 m. filter cloth for feed filters

6 glass tubes for lubricator

The foregoing is a correct description As Tredrikstad Mek. Verksted

Manufacturer.

For forced draught fan engine: 1 set piston rings, 1 piston valve  
For dynamo engine: 1 set piston rings, 1 piston valve, 1 complete crank-bearing, 2 governor springs, 1 set rings for metallic packing  
For air pump: 1 set valves.

1948: 9/9, 3/12, 30/12 - 1949: 17/1, 4/2, 25/2, 1/3, 4/3, 25/3, 2/4, 11/4, 27/4, 10/5  
 21/5, 28/5, 4/6, 10/6, 14/6, 18/6  
 19/7, 27/7, 30/7, 12/8, 17/8, 24/8, 29/8, 2/9

Dates of Survey while building

During progress of work in shops - - -

During erection on board vessel - - -

Total No. of visits 27

Dates of Examination of principal parts - Cylinders 17/1/49 - 25/2/49 - 4/3/49 Slides 25/2/49 Covers 13/1/49 - 25/2/49  
 Pistons 17/1/49 - 4/2/49 Piston Rods 17/1/49 - 4/2/49 Connecting rods 17/1/49 - 4/2/49  
 Crank shaft 4/2/49 - 26/2/49 Thrust shaft 9/4/48 - 17/1/49 - 4/2/49 Intermediate shafts 25/2/49 - 1/3/49 - 27/4/49 - 28/5/49 - 3/6/49  
 Tube shaft ✓ Screw shafts 11/1/40 - 26/2/40 - 20/4/40 - 10/6/49 Propeller 28/5/49 - 10/6/49  
 Stern tube 17/1/49 - 5-28/5/49 Engine and boiler seatings 5/5/49 - 10/6/49 Engines holding down bolts 30/7/49

Completion of fitting sea connections 10/6/49  
 Completion of pumping arrangements 17/8/49 Boilers fixed 30/7/49 Engines tried under steam 29/8/49  
 Main boiler safety valves adjusted 29/8/49 Thickness of adjusting washers ✓

Crank shaft material S.M. Steel Identification Mark R No 15/19 WALM/247 Thrust shaft material S.M. Steel Identification Mark R.F.M.V. 326-1 4.2.49 P.E.  
 Intermediate shafts, material S.M. Steel Identification Marks R.F.M.V. 326 327 328 P.E.-LT.-P.E.S. Tube shaft, material ✓ Identification Mark ✓

Screw shaft, material S.M. Steel Identification Mark R.F.M.V. 326 Steam Pipes, material seamless steel Test pressure 46.5 kg/cm<sup>2</sup> Date of Test 27/7/49  
 10.6.49 P.E.

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 the Rules for the use of oil as fuel been complied with Yes ✓  
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo. No ✓ If so, have the requirements of the Rules been complied with ✓  
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with ✓  
 Is this machinery duplicate of a previous case. Yes ✓ If so, state name of vessel "Christen Smith"

General Remarks (State quality of workmanship, opinions as to class, &c.)

This machinery has been constructed in accordance with the approved plans and in conformity with the Secretary's letters concerning this vessel. All materials where required by the Rules have been tested by the Society's Surveyors.  
 The main engine cylinders and covers, the condensers, feed heaters, all steam piping, superheater elements and headers, feed pipes and oil fuel piping have been tested as per Rules and found satisfactory. The pumping arrangement have been constructed and fitted as per Rules and as approved. The workmanship throughout is good. - The heating coils for oil fuel were tested after assembly in place, the settling tanks were tested on completion and found satisfactory.  
 Oil fuel installation, pumps in engine room and boiler room tested under working conditions.  
 The machinery was examined under full working conditions during wharf trials and during 7 hours trial trip.  
 The forgings used, apart from the crankshaft, were all made and tested by us at the builder's shop.

It is recommended that this vessel's machinery be classed in the Society's Register Book, with notation ✕ LMC 9.49. Boiler pressure 220 lbs. Screwshaft fitted with continuous liner. Fitted for oil fuel 9.49. F.P. above 150° F.

The amount of Entry Fee ... £ : : When applied for,  
 Special ... £ 353.5. 53 : : 17/9/1949  
 Donkey Boiler Fee ... £ : : When received,  
 Travelling Expenses (if any) £ 300.00 : : 26/9/1949

B. T. Witt P. Sira P. P. P. P. P.  
 Engineer Surveyor to Lloyd's Register of Shipping.

Date FRI. 18 NOV 1949

Committee's Minute + LMC 9.49

FITTED FOR OIL FUEL 11.49 FLASH POINT ABOVE 150°F. F.D. C.L. 253 220lb Spt

