

## REPORT ON OIL ENGINE MACHINERY.

No. 10805.

MAR -7 1939

Date of writing Report 28<sup>th</sup> February 39 When handed in at Local Office

Port of Copenhagen

No. in Survey held at Copenhagen &amp; Aarhus

Date First Survey 6<sup>th</sup> April 1938 Last Survey 27<sup>th</sup> February 39

Reg. Book.

Number of Visits 94

87537 on the <sup>Single</sup> ~~Twin~~ <sup>Motor</sup> ~~Triple~~ <sup>Screw</sup> ~~Quadruple~~ vessel

CANADIAN STAR

Tons Gross 8293.01  
Net 5004.09

Built at Copenhagen

By whom built H. Burmeister &amp; Wain's

Yard No. 640 When built 1939

Engines made at Copenhagen

By whom made H. Burmeister &amp; Wain's

Engine No. 2908 When made 1939

Donkey Boilers made at Copenhagen

By whom made H. Burmeister &amp; Wain's

Boiler No. 1948 When made 1939

Brake Horse Power 7100

Owners Blue Star Line Ltd.

Port belonging to London

Nom. Horse Power as per Rule 1236

Is Refrigerating Machinery fitted for cargo purposes *ye*Is Electric Light fitted *ye*

Trade for which vessel is intended Open sea service.

OIL ENGINES, &amp;c.—Type of Engines Vertical heavy oil, solid injected crosshead or 4 stroke cycle 2 Single or double acting double

Maximum pressure in cylinders 49 kg/cm<sup>2</sup> Diameter of cylinders 620 7/8 Length of stroke 1400 7/8 No. of cylinders 6 No. of cranks 6Mean Indicated Pressure 6.35 kg/cm<sup>2</sup>

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge 1164 7/8

Is there a bearing between each crank *ye*

Revolutions per minute 117

Flywheel dia. 2240 7/8

Weight 5540 kg

Means of ignition Compression Kind of fuel used *bride oil*Crank Shaft, { Solid forged  
Semi built  
All built

dia. of journals as per Rule 471 7/8 as fitted 484 7/8 Crank pin dia. 484 7/8 Crank Webs Mid. length breadth 1040 7/8 Mid. length thickness 250 7/8

Thrust Shaft, diameter at collars as per Rule 436.80 7/8 as fitted 460 7/8 with central hole 115 7/8

Flywheel Shaft, diameter as per Rule as fitted

Intermediate Shafts, diameter as per Rule 416 7/8 as fitted 430 7/8

Tube Shaft, diameter as per Rule as fitted

Screw Shaft, diameter as per Rule 452 7/8 as fitted 475 7/8

Is the tube screw shaft fitted with a continuous liner *ye*

Bronze Liners, thickness in way of bushes as per Rule 21.5 7/8 as fitted 23.0 7/8

Thickness between bushes as per Rule 16.1 7/8 as fitted 17 7/8

Is the after end of the liner made watertight in the

propeller boss *ye*If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner *ye*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 *ye*If two liners are fitted, is the shaft lapped or protected between the liners *ye*

Is an approved Oil Gland or other appliance fitted at the after end of the tube

shaft *ye* If so, state type

Length of Bearing in Stern Bush next to and supporting propeller 1880 7/8

Propeller, dia. 5180 7/8 Pitch 3958 7/8 No. of blades 4

Material bronze whether Moveable *no* Total Developed Surface 10.3 sq. feet

Method of reversing Engines direct reversible

Is a governor or other arrangement fitted to prevent racing of the engine when declutched *ye* Means of lubrication

forced Thickness of cylinder liners 42 7/8

Are the cylinders fitted with safety valves *ye* Are the exhaust pipes and silencers water cooled or lagged withnon-conducting material lagged *ye* If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engineCooling Water Pumps, No. 2 Diameter 160 7/8 Stroke 240 7/8 Is the sea suction provided with an efficient strainer which can be cleared within the vessel *ye*Bilge Pumps worked from the Main Engines, No. 2 Can one be overhauled while the other is at work *ye*

Pumps connected to the Main Bilge Line { No. and Size 1 off ballast p. 200 5/8 2 off bilge &amp; sanitary p. 26 5/8 each 2 off bilge &amp; sanitary 33 5/8 off fuel oil tank

How driven *electromotor* *electromotor* *main engine* *electromotor*Is the cooling water led to the bilges *no* If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping

arrangements

Ballast Pumps, No. and size 1 off centrifugal 200 5/8 Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size 2 off 275 Tons each

Are two independent means arranged for circulating water through the Oil Cooler *ye* Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Machinery Spaces Branch 5 1/4 3/2 Direct 1 1/4 7 2 1/4 3 2 1/4 3 1/2 In Pump Room

In Holds, &amp;c. TANK I: 1 1/4 4 TANK II: 4 1/4 3 1/2 TANK III: 4 1/4 3 1/2 TANK IV: 4 1/4 3 1/2 TANK V: 4 1/4 3 1/2 TANK VI: 2 1/4 3 1/2 TANK VII: 1 1/4 3 1/2

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size 2 off 3 (bilge &amp; sanitary) 1 off 7 (ballast pump)

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes *ye* Are the Bilge Suctions in the Machinery Spacesled from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges *ye*Are all Sea Connections fitted direct on the skin of the ship *ye* Are they fitted with Valves or Cocks *valves except boiler blow off cock*Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates *ye* Are the Overboard Discharges above or below the deep water line *above*Are they each fitted with a Discharge Valve always accessible on the plating of the vessel *ye* Are the Blow Off Cocks fitted with a spigot and brass covering plate *ye*What pipes pass through the bunkers *None* How are they protected *ye*What pipes pass through the deep tanks *None* Have they been tested as per Rule *ye*Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times *ye*

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 *ye* Is the Shaft Tunnel watertight *ye* Is it fitted with a watertight door *ye* worked from *engine top*

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Main Air Compressors, No. 2 No. of stages 2 Diameters 9: 130 7/8 8: 115 7/8 Stroke 120 7/8 Driven by *electromotor*Auxiliary Air Compressors, No. 2 4 cylinders No. of stages 2 Diameters 9: 106 7/8 8: 85 7/8 Stroke 80 7/8 Driven by *steam*Small Auxiliary Air Compressors, No. 1 1 cylinder No. of stages 2 Diameters 9: 110 7/8 8: 85 7/8 Stroke 70 7/8 Driven by *hand*What provision is made for first Charging the Air Receivers *the steam driven air compressor* Driven by *main engine*Scavenging Air Pumps, No. 2 342 7/8 1/4 in. Diameter *rotary* Stroke No. 3 Position in the engine roomAuxiliary Engines crank shafts, diameter as per Rule 143 7/8 as fitted 180 7/8 Is a report sent herewith *ye*Have the Auxiliary Engines been constructed under special survey *ye*



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**AIR RECEIVERS:**—Have they been made under survey *yes* State No. of Report or Certificate *831-832*

Is each receiver, which can be isolated, fitted with a safety valve as per Rule *yes*

Can the internal surfaces of the receivers be examined and cleaned *yes* Is a drain fitted at the lowest part of each receiver *yes*

**EMERGENCY**  
**Injection Air Receivers, No.** *2* Cubic capacity of each *300 litres* Internal diameter *336 7/8* Thickness *10 7/8*

Seamless, lap welded or riveted longitudinal joint *lap welded* Material *S.M. Steel* Range of tensile strength *430 kg/cm<sup>2</sup>* Working pressure *by Rules 30 atm*

**Starting Air Receivers, No.** *2* Total cubic capacity *144 500 cubic feet* Internal diameter *5-11/8"-6-1"* Thickness *ENDS 28 28 13 13*

Seamless, lap welded or riveted longitudinal joint *lap welded* Material *S.M. Steel* Range of tensile strength *ENDS 28-28* Working pressure *Actual 25 atm*

**IS A DONKEY BOILER FITTED?** *yes* If so, is a report now forwarded? *yes*

Is the donkey boiler intended to be used for domestic purposes only *No*

**PLANS.** Are approved plans forwarded herewith for Shafting *6/11-1937-14/1938* Receivers *13/12-1937* Separate Fuel Tanks *13/12-1937*

Donkey Boilers *27/5-1937-11/1938* General Pumping Arrangements *8/14-1937* Pumping Arrangements in Machinery Space *30/11-1937*

Oil Fuel Burning Arrangements *—*

**SPARE GEAR.**

Has the spare gear required by the Rules been supplied *yes*

State the principal additional spare gear supplied *1 propeller shaft complete, 1 cylinder frame, 1 piston rod screw, 1 top end and 1 bottom end exhaust piston complete, 1 pair of brasses for eccentric rods, 1 pair of main bearing brasses.*

The foregoing is a correct description.

**AKTIESELSKABET**  
**BURMEISTER & WAINSKIN-OG SKIBSBYGGERI** Manufacturer.

Dates of Survey while building

Dates of Examination of principal parts—Cylinders and Covers

Crank shaft, Material *S.M. Steel* Identification Mark *4-16-9-38* Flywheel shaft, Material *S.M. Steel* Identification Mark *4-16-9-38* Thrust shaft, Material *S.M. Steel* Identification Mark *4-16-9-38* Intermediate shafts, Material *S.M. Steel* Identification Marks *CV 12-10-38*

Tube shaft, Material *S.M. Steel* Identification Mark *4-16-9-38* Screw shaft, Material *S.M. Steel* Identification Mark *4-16-9-38*

Identification Marks on Air Receivers *Starting air receiver: Lloyd's 56 atm. WP 28 atm. CV 24-6-38*  
*Emergency air receiver: No 831-832 Lloyd's 56 atm. WP 28 atm. CV 24-6-38*

Is the flash point of the oil to be used over 150° F. *yes*

Have the requirements of the Rules for oil fuel pipes and tank fittings 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 *No*

Is this machinery duplicate of a previous case *yes* If so, state name of vessel *CALIFORNIA STAR of London*

**General Remarks** (State quality of workmanship, opinions as to class, etc.) *The machinery has been constructed under Special Survey and in accordance with the Society's Rules, the approved plans and the requirements contained in the Secretary's Letters E dated 9/11-30/11-12-1937-18/1 and 16/1-1938. The material has been tested as required by the Rules either by us or as per certificates produced.*

*The workmanship is good.*

*On completion and on the trial trip the whole of the machinery was tested under working conditions and found good and the manoeuvring was tested and found satisfactory. An informal certificate issued as per copy enclosed.*

The amount of Entry Fee *£104.40* When applied for, *6-3-1939*

Special *£2932.16* When received, *16-5-1939*

2 starting air receivers *£188.16*

Donkey Boiler Fee *£30.00*

Travelling Expenses (if any) *£65.50*

Committee's Minute

Assigned *+ Linc 2.38 CL*

*203 80 lb Oil Eng*

Rpt. 8a.  
Port of *Copenhagen* Continuation of Report No. *10805* dated *28 February 1939* the  
*Shel Single Screw Motor Vessel CANADIAN STAR of London*  
*Yard No 640 by F. Burmeister & Wain's Maskin-og Skibsbggeri, Copenhagen*

**AUXILIARY MACHINERY.**

*One centrifugal ballast pump 200 Tons/hour.*

*Two " " cooling seawater pumps for main engine 325 Tons/hour each.*

*One " " freshwater " " " " " " 325 " " "*

*One " " " " seawater " " " " " " 40 " " "*

*One " " " " freshwater " " " " " " 40 " " "*

*One 2-plunger bilge and sanitary pump 26 Tons/hour each.*

*One bilge pump, plunger pump worked by main engine 33 Tons/hour.*

*One sanitary " " " " " " " " 33 " " "*

*Two lubricating oil pumps. " " " " " " 260 " " "*

*One oil fuel transfer pump - cog wheel pump 30 " " "*

*One centrifugal freshwater pump 15 " " "*

*Two vertical simplex donkey boiler feed pumps 4 1/2" x 2 1/2" x 6"*

*One centrifugal water circulating pump for exhaust boiler 4 Tons/hour.*

*Two centrifugal cooling water pumps for refrigerating machinery (cargo) 120 Tons/hour.*

*One " " " " " " " " (provision) 5 " " "*

*S. Hansen.*