

## REPORT ON OIL ENGINE MACHINERY.

No. 4544

Date of writing Report 26<sup>th</sup> July 1920 When handed in at Local Office 26<sup>th</sup> July 1920 Port of Göthenburg  
 No. in Survey held at Lyskil Date, First Survey 5<sup>th</sup> May Last Survey 23<sup>rd</sup> June 1920  
 Reg. Book. 14928 on the Single Twin Triple Screw vessels "H. C. Hansen" Number of Visits 10  
 Master T. Andersen 20.93 Built at Tacoma Wash. By whom built Seaborn S.B.C. Yard No. 1660 When built 1917  
 Engines made at Lyskil By whom made Skandiaverken Engine No. 1308 When made 1920  
 Donkey Boilers made at ✓ By whom made ✓ Boiler No. ✓ When made ✓  
 Brake Horse Power ✓ Owners A/S. Persgrunds Motor & Leil Port belonging to Persgrunds  
 Nom. Horse Power as per Rule ✓ Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted yes

OIL ENGINES, &c.—Type of Engines Oil Engines, Semi Diesel 2 or 4 stroke cycle 2 Single or double acting Single  
 Maximum pressure in cylinders 23 kg. per cm<sup>2</sup> No. of cylinders 4 No. of cranks 4 Diameter of cylinders 360 mm (14 1/8")  
 Length of stroke 400 mm (15 3/4") Revolutions per minute 300 Means of ignition Lamps & iron balls Kind of fuel used Raw oil  
 Is there a bearing between each crank yes Span of bearings (Page 92, Section 2, par. 7 of Rules) ✓  
 Distance between centres of main bearings 700 mm Is a flywheel fitted yes Diameter of crank shaft journals as per Rule 149 mm  
 as fitted 170 mm Diameter of crank pins 170 mm Breadth of crank webs as per Rule 220 mm Thickness of ditto as per Rule 97 mm  
 as fitted 190 mm Diameter of flywheel shaft as per Rule 190 mm Diameter of tunnel shaft as per Rule 190 mm Diameter of thrust shaft as per Rule 170 mm  
 as fitted 170 mm Diameter of screw shaft as per Rule Is the screw shaft fitted with a continuous liner the whole length of the stern tube ✓  
 as fitted ✓ Is the after end of the liner made watertight 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 ✓ If without liners, is the shaft arranged to run in oil ✓  
 Type of outer gland fitted to stern tube ✓ Length of stern bush ✓ Diameter of propeller ✓  
 Pitch of propeller ✓ No. of blades ✓ state whether moveable ✓ Total surface ✓ square feet  
 Method of reversing Compressed air Is a governor or other arrangement fitted to prevent racing of the engine when declutched yes Thickness of cylinder liners No liners  
 Are the cylinders fitted with safety valves yes Means of lubrication Light feed Are the exhaust pipes and silencers water cooled or lagged with  
 non-conducting material yes If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine Exhaust  
is led vertically into the air No. of cooling water pumps 2 Is the sea suction provided with an efficient strainer which can be cleared  
 within the vessel yes No. of bilge pumps fitted to the main engines 2 Diameter of ditto 70 mm Stroke 86"  
 Can one be overhauled while the other is at work yes No. of auxiliary pumps connected to the main bilge lines As previously How driven  
 Sizes of pumps No. and sizes of suctions connected to both main bilge pumps and auxiliary bilge pumps:—In engine room  
 and in holds, etc. No. of ballast pumps How driven Sizes of pumps  
 Is the ballast pump fitted with a direct suction from the engine room bilges State size Is a separate auxiliary pump suction fitted in  
 Engine Room and size 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 Are all connections with the sea direct on the skin of the ship  
 Are they valves or cocks Are they fixed sufficiently high on the ship's side to be seen without lifting the floor plates  
 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  
 Are all pipes, cocks, valves and pumps in connection with the machinery 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 None Is it fitted with a watertight door ✓  
 worked from If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork Metal trays  
 No. of main air compressors one No. of stages two Diameters 162 mm Stroke 131 mm Driven by Main engines  
 No. of auxiliary air compressors as previously No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓  
 No. of small auxiliary air compressors ✓ No. of stages ✓ Diameters ✓ Stroke ✓ Driven by ✓  
 No. of scavenging air pumps Cylinders scavenged by comp. air in crank house Stroke ✓ Driven by ✓  
 Diameter of auxiliary Diesel Engine crank shafts as per Rule Are the air compressors and their coolers made so as to be easy of access as fitted

AIR RECEIVERS:—No. of high pressure air receivers Internal diameter Cubic capacity of each  
 material Seamless, lap welded or riveted longitudinal joint Range of tensile strength  
 thickness working pressure by Rules No. of starting air receivers Internal diameter  
 Total cubic capacity Material Seamless, lap welded or riveted longitudinal joint  
 Range of tensile strength thickness Working pressure by rules Is each receiver, which can be isolated,  
 fitted with a safety valve as per Rule Can the internal surfaces of the receivers be examined What means are provided for clearing their  
 inner surfaces Is there a drain arrangement fitted at the lowest part of each receiver

W656-0284



IS A DONKEY BOILER FITTED? *No*

If so, is a report now forwarded? ☒

HYDRAULIC TESTS:— *Harold Engines*

DESCRIPTION.	DATE OF TEST.	WORKING PRESSURE.	TEST PRESSURE.	STAMPED.	REMARKS.
ENGINE CYLINDERS .....	<i>5/5/20</i>	<i>23 kg per cm<sup>2</sup></i>	<i>50 kg per cm<sup>2</sup></i>	<i>5-20 B</i>	
" " COVERS .....	<i>5/5/20</i>	<i>23 " "</i>	<i>50 " "</i>	<i>5-20 B</i>	<i>Tested on water side to 4 kg per cm<sup>2</sup></i>
" " JACKETS .....	<i>5/5/20</i>		<i>4 " "</i>		
" PISTON WATER PASSAGES .....					
MAIN COMPRESSORS—1st STAGE .....					
" 2nd " .....					
" 3rd " .....					
AIR RECEIVERS—STARTING .....					
" INJECTION .....					
AIR PIPES .....					
FUEL PIPES .....	<i>5/5/20</i>		<i>50 kg per cm<sup>2</sup></i>		
FUEL PUMPS .....					
SILENCER .....	<i>5/5/20</i>		<i>" " "</i>	<i>5-20 B</i>	
" WATER JACKET .....	<i>5/5/20</i>		<i>" " "</i>		
SEPARATE FUEL TANKS .....					

PLANS. Are approved plans forwarded herewith for shafting *yes*  
(If not, state date of approval)

Receivers ☒

Separate Tanks ☒

SPARE GEAR *5 cyl. covers compl.; 2 pistons compl.; 18 piston rings; 2 connecting rod top & bottom end bolts with nuts; 2 main bearing bolts with nuts; 4 skew wheels; 1 set of coupling bolts; 7 piston rings for HP and 4 ditto for LP compressor; 8 ignition balls; 1 half set of valves for each of the HP & LP compressors; 1 fuel pump; 4 valves with springs and 4 valve seats for pumps; 16 nozzles for fuel injection; 20 rinsing needles; 4 sets of air valves with springs; a quantity of assorted bolts & nuts including one set of cyl. cover studs & nuts and bolts for patent coupling & suitable lengths of pipes for fuel & air*

The foregoing is a correct description,

*Skandia-Torben M. Lysen*  
*Bl. de Mer*

Manufacturer.

Dates of Survey while building  
During progress of work in shops— *May 5<sup>th</sup> - 31<sup>st</sup>*  
During erection on board vessel— *June 14<sup>th</sup> - 23<sup>rd</sup>*  
Total No. of visits *10*

Dates of Examination of principal parts—Cylinders *5/5, 31/5* Covers *5/5, 18/5, 31/5* Pistons *5/5* Rods *5/5* Connecting rods *5/5*  
Crank shaft *18/5* Thrust shaft on cr. shaft tunnel shafts ☒ Screw shaft *5/5* Propeller ☒ Stern tube ☒ Engine seatings *14/6*  
Engines holding down bolts ☒ Completion of pumping arrangements ☒ Engines tried under working conditions *23/6*

Completion of fitting sea connections ☒ Stern tube ☒ Screw shaft and propeller ☒  
Material of crank shaft *steel* Identification Mark on Do. *5-5-2045* Material of thrust shaft *steel* Identification Mark on Do. *see cr. shaft*  
Material of tunnel shafts *None* Identification Marks on Do. ☒ Material of screw shafts ☒ Identification Marks on Do. ☒

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

Is this machinery duplicate of a previous case *yes* If so, state name of vessel *Port engine of same vessel*

General Remarks (State quality of workmanship, opinions as to class, &c. *The starboard engine completely renewed except the propeller shaft, propeller and stern tube. A flexible coupling, as per plans approved in the London office on the 11<sup>th</sup> June 1920, has been fitted to the starboard engine between the thrust and propeller shafts. The new machinery of this vessel has been built under special survey of the surveyors to Norske Veritas, who have also tested the forgings. All parts have been examined by us and eng. etc. tested in our presence as recorded above. Norske Veritas test certificates are enclosed herewith.*

*The machinery of this vessel is worthy in our opinion to remain as now classed in the Register Book with the notation of + N. Starboard E 6,20*

The amount of Entry Fee ... *£ 40.00* : When applied for,  
Special ... *£ 350.00* : *20/5* 1920  
Donkey Boiler Fee ... *£ 1.00* :  
Travelling Expenses (if any) *£ 300.00* : When received, 1920

*V. Hailow*

*A. Sundin*

Engineer-Surveyor to Lloyd's Register of Shipping.

TUE. 23 JAN. 1923

Committee's Minute TUE. AUG. 10 1920

FRI. NOV. 19 1920

TUES. 20 MAY 1924

TUE. 20 OCT. 1923

FRI. 15 AUG. 1924

Assigned

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Foundation