

REPORT ON OIL ENGINE MACHINERY.

No. 8259

Received at London Office 14 APR 1931

Date of writing Report *9th April 1931* When handed in at Local Office *11th April 1931* Port of *Gothenburg*

No. in Survey held at *Gothenburg* Date, First Survey *6th Oct., 1930* Last Survey *30th March 1931*

Reg. Book. *92484* on the *Single* *Twin* *Triple* *Quadruple* Screw vessel *"SKOTAAS"* Tons *Gross 8190 Net 4894*

Built at *Dundee* By whom built *Caledon S.B. & Eng. Ltd* Yard No. *335* When built *1931*

Engines made at *Gothenburg* By whom made *A.B. Götaverken* Engine No. *961* When made *1931*

Donkey Boilers made at By whom made Boiler No. When made

Brake Horse Power *v* Owners *Skibs A/S. Nanset* Port belonging to *Larvik*

Nom. Horse Power as per Rule *634 633* Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *Yes.*

Trade for which vessel is intended *General*

OIL ENGINES, &c.—Type of Engines *Two Diesel Oil Engines* 2 or 4 stroke cycle *4* Single or double acting *Single*

Maximum pressure in cylinders *35 kg/cm²* Diameter of cylinders *550 mm [21 5/8"]* Length of stroke *1000 mm [39 3/8"]* No. of cylinders *14* No. of cranks *14*

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge *724 mm.* Is there a bearing between each crank *Yes.*

Revolutions per minute *155* Wheel dia. *1362 mm.* Weight *880 kg* Means of ignition *Diesel System* Kind of fuel used *Diesel Oil*

Crank Shaft, dia. of journals *as per Rule 350 mm.* Crank pin dia. *350 mm.* Crank Webs Mid. length breadth *v* Thickness parallel to axis *197-213 mm.*

as fitted *350 mm.* Mid. length thickness *v* shrunk Thickness around eye-hole *171 mm.*

Flywheel Shaft, diameter *as per Rule v* Intermediate Shafts, diameter *as per Rule 255 mm.* Thrust Shaft, diameter at collars *as per Rule 300 mm.*

as fitted *None* as fitted *255 mm.* as fitted *300 mm.*

Tube Shaft, diameter *as per Rule v* Screw Shaft, diameter *as per Rule 288 mm.* Is the *shaft* shaft fitted with a continuous liner *Yes.*

as fitted *None* as fitted *288 mm.* as fitted *288 mm.*

Bronze Liners, thickness in way of bushes *as per Rule 16.4 mm.* Thickness between bushes *as per Rule 12.3 mm.* Is the after end of the liner made watertight in the

as fitted *17 & 19 mm.* as fitted *16.0 mm.*

Propeller boss *Yes.* If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner *Liner in one length*

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.*

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

ast *No* If so, state type *v* Length of Bearing in Stern Bush next to and supporting propeller *1345 mm.*

Propeller, dia. *3504 mm.* Pitch *2514 mm.* No. of blades *4* Material *Bronze* whether Moveable *No* Total Developed Surface *24.2 = 84 sq. feet*

Method of reversing Engines *Direct reversible by means of compressed air [B & W system]* Is a governor or other arrangement fitted to prevent racing of the engine when declutched *Yes.* Means of lubrication

Forced Thickness of cylinder liners *Top 38 mm. Bottom 27.5 mm.* Are the cylinders fitted with safety valves *Yes.* Are the exhaust pipes and silencers water cooled or lagged with

non-conducting material *Lagged* If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine *Led to a funnel*

Cooling Water Pumps, No. *Two 150 tons centrif pumps.* Is the sea suction provided with an efficient strainer which can be cleared within the vessel *Yes.*

Bilge Pumps worked from the Main Engines, No. *2.* Diameter *150 mm.* Stroke *135 mm.* Can one be overhauled while the other is at work *Yes.*

Pumps connected to the Main Bilge Line *No. and Size Two direct driven pumps 22 tons each, vertical duplex bilge pump 20 tons, vertical duplex ballast pump 75 tons*

How driven *By main engines* Lubricating Oil Pumps, including Spare Pump, No. and size *Two 80 tons rotary pumps.*

Ballast Pumps, No. and size *one 75 tons in machinery space, one 60 tons in pump room forward, large pump in "amidship"* Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Are two independent means arranged for circulating water through the Oil Cooler *Yes.*

Pumps, No. and size:—In Machinery Spaces *Three 3 1/2" & two 2 1/2" [Two 2" from copperdams in way of mach. space.]* In Pump Room *None*

In Holds, &c. *None [Two 2 1/2" in hold, one 2 1/2" in forward pump room & two 3" in pump room amidship connected to separate pumps.]*

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size *One 3 1/2" to bilge pump & one 5" to ballast pump.*

Are all the Bilge Suction pipes in Hold *and Tunnel Well* fitted with strum-boxes *Yes.* Are the Bilge Suctions in the Machinery Spaces

ed 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 *Yes.*

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates *Yes.* 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 *Yes.* Are the Blow Off Cocks fitted with a spigot and brass covering plate *Yes.*

What pipes pass through the bunkers *No bunkers.* How are they protected *v*

What pipes pass through the deep tanks *Steam heating coils & cargo lines* Have they been tested as per Rule *v*

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 *No Tunnel* Is it fitted with a watertight door *v* worked from *v*

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

Main Air Compressors, No. *2.* No. of stages *3.* Diameters *134, 540, 600 mm.* Stroke *400 mm.* Driven by *Main engines*

Auxiliary Air Compressors, No. *1* No. of stages *3* *Driving 220 cub feet air per hour at a pressure of 850 lb/sq. in.* Driven by *Steam engine*

Small Auxiliary Air Compressors, No. *None* No. of stages *v* Diameters *v* Stroke *v* Driven by *v*

Scavenging Air Pumps, No. *None* Diameter *v* Stroke *v* Driven by *v*

Auxiliary Engines crank shafts, diameter *as per Rule 135 mm.* No. *One Diesel & one steam engine [see other side]*

as fitted *135 mm.* Position *On port and starboard side on a platform, aft in machinery space*

AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve *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.*

High Pressure Air Receivers, No. *4* Cubic capacity of each *24.350 liter each* Internal diameter *450 mm.* thickness *25.5 mm.*

Seamless, lap welded or riveted longitudinal joint *Lap welded* Material *S.M. Steel* Range of tensile strength *36.7-40.2 kg/cm²* Working pressure *by Rules 21.5 kg/cm² Actual 6.5*

Starting Air Receivers, No. *2.* Total cubic capacity *2 x 12.5 = 25 met³* Internal diameter *1800 & 1850 mm.* thickness *25.0 & 25.5 mm.*

Seamless, lap welded or riveted longitudinal joint *Riveted* Material *S.M. Steel* Range of tensile strength *44-50 kg/cm²* Working pressure *by Rules 25.4 kg/cm² Actual 25.0*

004055-004061-0220

IS A DONKEY BOILER FITTED? *Yes Two boilers* If so, is a report now forwarded? *No*
Is the donkey boiler intended to be used for domestic purposes only *No*
PLANS. Are approved plans forwarded herewith for Shafting *No* ^{10/12/29, 4/12/29, 28/1/30} Receivers *No* ^{19/12/29 & 20/1/30} Separate Tanks *No* ^{19/9/28 [7/5/15]}
(If not, state date of approval)
Donkey Boilers *✓* General Pumping Arrangements *No* ^{20/3/30} Oil Fuel Burning Arrangements *✓*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*
State the principal additional spare gear supplied *For the main engines:- 12 sets of exhaust valves complete, 5 fuel valves complete, 1 cylinder liner, 1 cylinder cooling jacket, 2 sets of piston rings for one piston, 4 halves of gudgeon pin bosses, 4 halves of crank pin bosses, 2 halves of main bearing bosses, 1 propeller shaft with nut, 2 cast iron propellers, 1 cam roller with pin of each cylinder, 7 safety valves for the starting air piping, 7 ditto for the injection air piping, 10 tubes for lubricating air cooler.*
For the main engine compressors:- 2 halves of gudgeon pin bosses, 2 crank pin bolts & nuts, 2 halves of crank pin bosses, 2 halves of main bearing bosses, 1 set of HP air cooling coils, 10 tubes for HP & 10 tubes for LP air cooler.
For the auxiliary Diesel engine:- [See report attached]
For the auxiliary steam engine:- 2 sets of HP & LP piston rings, 2 halves of crosshead & crank pin bosses, 6 halves of main bearing bosses. For the manoeuvring steam engine driven compressor:- 2 crank pin bolts & nuts for the steam engine, 2 ditto for the compressor, 1 set of crosshead, crank pin & main bearing bosses for the steam engine, 1 set of piston rings for the steam engine.
For the donkey boilers:- 2 check valves, 2 safety valve springs, 15 ordinary tubes, 7 spare parts for the fuel installation.

The foregoing is a correct description.

ARTIFACTS
H.C. Hammar,

Manufacturer.

Dates of Survey while building { During progress of work in shops - - 1930. Oct. 6, 16, 25, 28, 30. Nov. 10, 11, 13, 15, 17, 19, 19, 24, 25. Dec. 3, 6, 10, 16, 17, 18, 19, 1931. Jan. 8, 21, 27, 30. Feb. 20, 21, 23
During erection on board vessel - - 1931. Jan. 20, 29, Feb. 12, 13, 19, 27, 27. March - 4, 20, 26, 27, 28
Total No. of visits *41*

Dates of Examination of principal parts—Cylinders ^{10/12/30} ^{14/12/30} Covers ^{10/12/30} Pistons ^{16/10/30} Rods *✓* Connecting rods ^{10/11/30}
Crank shaft ^{29/8/30} Flywheel shaft *✓* Thrust shaft ^{22/12/30} Intermediate shafts ^{30/1/31} Tube shaft *✓*
Screw shaft *✓* Propeller ^{9/3/31} Stern tube *✓* Engine seatings *✓* Engines holding down bolts ^{20/1/31}
Completion of fitting sea connections *✓* Completion of pumping arrangements ^{27/3/31} Engines tried under working conditions ^{29/3/31}

Crank shaft, Material *P.M. Steel* Identification Mark *440905* Flywheel shaft, Material *✓* Identification Mark *440905*
Thrust shaft, Material *P.M. Steel* Identification Mark *440905* Intermediate shafts, Material *P.M. Steel* Identification Marks *440905*
Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *P.M. Steel* Identification Mark *440905*
SPARE

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 *✓*

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 *M/s "FOSNA" & M/s "NORDANVIK"*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The main engines of this vessel have been built under special survey and all the requirements of the Rules have been complied with. The shafting as per copy of forging reports attached. Material of starting air receivers as per test sheets attached. The workmanship is good and the materials fulfill the requirements of the Rules & approved plans. The auxiliary machinery consists of one 2 cyl., 2 stroke cycle, single acting Diesel Oil engine manufactured by Messrs. Nydqvist & Holm of Malmö [Report attached] and one compound steam engine of cyl diam 11" x 15" and stroke 7" manufactured by Messrs. Wm. Allen, Sons & Co. of Bedford, each working a dynamo of 50 H.P. The steam engine driven auxiliary compressor is delivered from Messrs. Peter Brotherhood Ltd of Peterborough. Bilge suction has been tested under working conditions [See Secretary's letter init E. of the 15/12/30]. The main & auxiliary engines have been tried under full working conditions on a trial trip & found to work satisfactorily.*

The Machinery of this vessel is eligible in our opinion to be classed in the Register Book of this Society with notation of *+ LMC 3.31*

The amount of Entry Fee *£ 109.20*

Special *£ 1941.94*

Donkey Boiler Fee *£ 152.88*

Travelling Expenses (if any) *£*

Committee's Minute

Assigned

When applied for, *11th April 31*

When received, *6.5.31*

FRI, 24 APR 1931

See F.E. Rpt.

Ap. W. E. Magnusson
Engineer Surveyor to Lloyd's Register of Shipping.



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