

Report on Refrigerating Machinery and Appliances.

Received at London Office 3- OCT 1945

Date of writing Report 19/9 19 45. When handed in at Local Office 26/9 19 45 Port of Gothenburg.

No. in Reg. Book 39057 Survey held at Gothenburg Date: First Survey 18th Oct. 41 Last Survey 11th September 19 45. (Number of Visits 32)

on the Refrigerating Machinery and Appliances of the Motorship "OLAV RAKKE" Tons Gross 5870 Net 4984

Vessel built at Gothenburg By whom built A-B. Götaverken Yard No. 561 When built 1945

Owners D/S A/S Jeanette Skinner Port belonging to Haugesund Voyage ---

Refrigerating Machinery made by A/S Drammens Jernstøberi & Mekaniske Verksted Machine Nos. 1787-8-9-90 when made 1943

Insulation fitted by A-B. Götaverken When fitted 1944-1945 System of Refrigeration NH₃

Method of cooling Cargo Chambers Brine & Air Insulating Material used Granulated Cork

Number of Cargo Chambers insulated 6 Total refrigerated cargo capacity 102738 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed In a separate compartment in the E.R.

Refrigerating Units, No. of 4 No. of machines 4 Is each machine independent Yes

Total refrigeration or ice-melting capacity in tons per 24 hours 65 Are all the units connected to all the refrigerated chambers No

Compressors, driven direct Compressors, single or double acting SA If multiple effect compression No

Are relief valves or safety discs fitted No. of cylinders to each unit 2 Diameter of cylinders 2 & 170 mm.

Diameter of piston rod 2 & 180 mm. Length of stroke 2 & 160 mm. No. of revolutions per minute 400

Motive Power supplied from 3 oil engine driven electric generators & 170 kW. (State number of boilers, oil engines or electric generators supplying the motive power.)

Steam Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders 2 Diameter 100 mm.

Length of stroke 180 mm. Working pressure 10 lb. Diameter of crank shaft journals and pins 100 mm.

Oil Engines, type 2 or 4 stroke cycle Single or double acting B.H.P. 100

No. of cylinders 2 Diameter 100 mm. Length of stroke 180 mm. Span of bearings as per Rule

Maximum pressure in cylinders 100 lb. Diameter of crank shaft journals and pins 100 mm.

Breadth and thickness of crank webs 100 mm. No. of sections in crank shaft 2 Revolutions of engine per minute 400

Air Receivers:—Have they been made under survey State No. of Report or Certificate

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

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

No. of Receivers 2 Cubic capacity of each 100 cu. ft. Internal diameter 100 mm. thickness 10 mm.

Seamless, lap welded or riveted longitudinal joint Material Range of tensile strength Working pressure by Rules

Electric Motors, type D.C. Drip proof compound No. of 4 Rated 41 - 24 Kilowatts 220 Volts

at about 400 revolutions per minute. Diameter of motor shafts at bearings 100 mm.

Reduction Gearing Pitch circle diameter, pinion 100 mm. Main wheel 100 mm. Width of face 100 mm.

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, pinion 100 mm. Main wheel 100 mm.

Pinion shafts, diameter at bearings 100 mm. Main wheel shaft, diameter at bearings 100 mm.

Gas Condensers, No. of 4 Shell and tube type, seamless steel Cylindrical or rectangular 100 mm. Are safety valves fitted

to casings 100 mm. No. of coils in each 100 Material of coils 100 Can each coil be readily shut off or disconnected

Water Circulating Pumps, No. and size of pumps available 2 & 330 l/m. now worked Electrically Gas Separators, No. of 4

Gas Evaporators, No. of 4 Shell and tube type, seamless steel Pressure or gravity type Pressure If pressure type, are safety

valves fitted Yes No. of coils in each casing 100 Material of coils 100 Can each coil be readily shut off or disconnected

Direct Expansion or Brine Cooled Batteries, No. of 6 Are there two separate systems, so that one may be in use while the other is being

cleared of snow Yes No. of coils in each battery 2-4-6-8 Material of coils Seamless steel

disconnected Yes Total cooling surface of battery coils 9700 sq. feet Is a watertight tray fitted under each battery Yes

Air Circulating Fans, Total No. of 8 each of 4-450 M. 910 cubic capacity, at 810 revolutions per minute

Steam or electrically driven Electrically Where spare fans are supplied are these fitted in position ready for coupling up None

Brine Circulating Pumps, No. and size of, including the additional pump 2 centrifugal & 266 l/m. now worked Electrically

Brine Cooling System, closed or open Closed Are the pipes and tanks galvanised on the inside No

No. of brine sections in each chamber 2

Can each section be readily shut off or disconnected Yes Are the control valves situated in an easily accessible position Yes

NOTE.—THE WORDS WHICH DO NOT APPLY SHOULD BE DELETED.

(MADE AND PRINTED IN ENGLAND.)

003659-003670-0276 1/2

© 2020

Lloyd's Register Foundation

Are thermometers fitted to the outflow and to each return brine pipe. **Yes** Where the tanks are closed are they ventilated as per Rule. **Yes**
Where the tanks are not closed is the compartment in which they are situated efficiently ventilated. **---**
Are the number and capacity of the machines and the number of pumps and sea connections in accordance with Section 2, Clause 1 of the Rules. **Yes**
Is the exhaust steam led to the main and auxiliary condensers. **---**

HYDRAULIC AND OTHER TESTS.

| DESCRIPTION. | Date of Test. | Working Pressure. | Hydraulic Test Pressure. | Air Test Pressure. | Stamped. | REMARKS. |
|--|---------------|-------------------|--------------------------|--------------------|----------|----------|
| Engine Cylinders (if tested) | | | | | | |
| Gas Compressors | | | | | | |
| „ Separators | | | | | | |
| „ Multiple Effect Receivers | | | | | | |
| „ Condenser Coils | | | | | | |
| „ Evaporator Coils | | | | | | |
| „ Condenser Headers and Connections | | | | | | |
| „ Condenser Casings | | | | | | |
| „ Evaporator Casings | | | | | | |
| NH ₃ Condenser, Evaporator and Air Cooler Coils after erection in place | 28.8.45 | --- | 16 kg/cm ² | --- | --- | --- |
| Brine Piping after erection in place | 28.8.45 | --- | 3.5 " | --- | --- | --- |

Have important steel castings and forgings been tested in accordance with the Rules. **Yes**
Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory. **Yes**
Dates of test **8/9 and 9/9/1945** Density of Brine **26°** by **Baumé** hydrometer
Temperatures (when the cargo chambers are cooled down to the required test temperatures) of delivery and return air at direct expansion or brine cooled batteries. **---** outflow and return brine **-16°C. & -13°C.**
atmosphere **16°C.** cooling water inlet and discharge **+17°C. & +19°C.** gas in condensers **+23°C.** and evaporators **+17°C.**
the average temperature of the refrigerated chambers **-8.95°C.** and the rise of temperature in these chambers upon the expiration of **12** hours time after the machinery and cooling appliances have been shut off **5.5°C.**

SPARE GEAR.

Are the working parts of the machines, pumps and motors respectively, interchangeable. **Yes**
Has the spare gear required by the Rules been supplied. **Yes**
Additional Spare Gear Supplied: **Please see Oslo Surveyors' report attached.**

The foregoing is a correct description of the Refrigerating Machinery.

Manufacturer.

DESCRIPTION OF INSULATION.

| IN LOWER HOLD CHAMBERS. | | | | | | IN 'TWEEN DECK CHAMBERS. | | | | |
|--|---------------|---------------|--------------------------|---------------------|---------------|---|---------------|--------------------------|---------------------|-------------------|
| | Air Space. | Outer Lining. | Non-conducting Material. | Thickness of ditto. | Inner Lining. | Air Space. | Outer Lining. | Non-conducting Material. | Thickness of ditto. | Inner Lining. |
| BULKHEADS. | (Fore Peak) | A | | | | Meat and fish chambers betw. Upper & 2nd dk. | | | | |
| | | F | Overheading. | | | 20 mm. | -- | Cover plates | 260 | 1" hardset cement |
| | | A | | | | -- | -- | " | 50 | 1" pine |
| | | F | Floors of chambers. | | | | | and below steel deck | | 1" cement. |
| | | A | | | | -- | -- | Gran. cork | 235 | 2 1/2" 5/8" |
| | Frame No. 101 | F | | | | | | | | |
| | | A | | | | -- | -- | Cork slabs | 300 | 3" hardset cement |
| | Frame No. 90 | F | | | | -- | -- | " | 350 | " |
| | | A | | | | | | | | |
| | Frame No. 130 | F | No. 3 hold. | | | between 2nd and 3rd decks. | | | | |
| | | A | Gran. cork | 265 | 2 1/2" 5/8" | -- | -- | Gran. cork. | 265 | 2 1/2" 5/8" |
| | Frame No. 111 | F | | | | | | | | |
| | | A | | 230 | " | -- | -- | " | 200 | " |
| | | | | 235 | " | -- | -- | " | 235 | " |
| | Frame No. 90 | F | | | | | | | | |
| | A | | | | | | | | | |
| Frame No. 80 | F | | | | | | | | | |
| Sides ... | -- | -- | Gran. cork. | 265 | 2 1/2" 5/8" | -- | -- | " | 265 | " |
| Overheading ... | -- | -- | " | 255 | " | -- | -- | " | 235 | " |
| Floors of Chambers ... | 2" | 1" | " | 150 | 5/8" & 2" | -- | -- | " | 255 | 2 1/2" & 5/8" |
| Trunk Hatchways ... | | | | | | -- | 2 1/2" 5/8" | " | 100 | 1 1/2" |
| Thrust Recess, Sides and Top ... | | | | | | | | | | |
| Tunnel Sides and Top ... | | | | | | | | | | |
| Tunnel Recess, Front and Top ... | | | | | | | | | | |
| Frames Face | | | | | | 8" x 2" - 6" x 2" | | | | |
| Bulkhead Stiffeners, Top | | | | | | 2" Bottom 2" and Face 7" x 2" - 6" x 2" - 8" x 2" | | | | |
| Ribband on Top of Decks | | | | | | | | | | |
| Side Stringers, Top | | | | | | Bottom and Face | | | | |
| Web Frames, Sides | | | | | | and Face | | | | |
| Brackets, Top | | | | | | Bottom and Face | | | | |
| Insulated Hatches, Main top, 2 1/2" 5/8" bottom | | | | | | Plug, insulation same as on T.T. Manhole Plug, insulation same as on T.T. | | | | |
| Hatchway Coamings, Main + galv. plate | | | | | | Bilge 7 1/2" x 7" - 4" pine | | | | |
| Hold Pillars 40 mm. cork slabs and 2" wood lining. | | | | | | | | | | |
| Derrick post 40 mm. cork slabs and 2" lining | | | | | | Ventilators 40 mm. cork slabs and 2" lining. | | | | |
| Are insulated plugs fitted to provide easy access to bilge suction roses. | | | | | | Yes tank, air, and sounding pipes. Yes heels of pillars. Yes | | | | |
| and manhole doors of tanks. | | | | | | Yes Are insulated plugs fitted to ventilators. -- cargo ports. -- and side lights. -- | | | | |
| Is the insulation of the lower hold floor in way of the hatchways protected. | | | | | | Yes if so, how. By additional 2" pine plugs | | | | |
| Oil Storage Tanks, where adjacent to the insulated chambers, state what provision has been made for ventilating the air space between the insulation and the bulkhead plating. | | | | | | | | | | |
| and for draining the tank top. | | | | | | 2" air space, bottom fitted athwartship | | | | |
| Fireproof Insulation. Is the insulation and woodwork fireproof in way of bunkers or any surfaces exposed to excessive heat. | | | | | | -- Where | | | | |
| Cooling Pipes pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof. | | | | | | Yes | | | | |
| Cargo Battens, Dimensions and spacing, sides 6"x2"-9" spacing floors. | | | | | | 2" x 3" loose tunnel top. | | | | |
| fixed at sides. Are screens fitted over the brine grids at chamber sides | | | | | | -- hinged or permanently fixed | | | | |
| Thermometer Tubes, No. and position in each chamber. | | | | | | As per approved plan | | | | |
| diameter. | | | | | | 2 1/2" are they fitted in accordance with Section 3, Clause 8. Yes | | | | |
| Protection of Pipes. Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated. | | | | | | Yes | | | | |
| Draining Arrangements. What provision is made for draining the inside of the chambers. | | | | | | 2" scupper to bilges with liquid scaled traps. | | | | |
| Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off. | | | | | | | | | | |
| What provision is made for draining the refrigerating machinery room. | | | | | | In engine room | | | | |
| brine return room. | | | | | | In engine room 2" scupper to bilges | | | | |
| fan room. | | | | | | with liquid scaled water circulating pump room. | | | | |
| In engine room | | | | | | traps | | | | |
| Are all air spaces behind insulation arranged to drain to the bilges, in way of the respective chambers. | | | | | | Yes | | | | |

Sounding Pipes, No. and position in each chamber situated below the load water line **As per approved plan (thermometer tubes)**

Diameter **2 1/2"** Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 11 **Yes**

Are all wood linings tongued and grooved **Yes** Are cement facings reinforced with expanded steel lattice

How is the expanded metal secured in place

How are the cork slabs secured to the steel structure of the vessel **Steel wire around slabs on pillars.**

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans **Yes**

Are they permanently fixed ~~XXXXXXXXXXXX~~ **Yes**

Where ~~XXXXXXXXXXXX~~ **access opening in** is cut **is cut** Are they fitted with watertight doors **Yes** Are the door frames efficiently insulated **Yes**

Are insulated plugs supplied for the doorways **(hinged)** Are the doors worked from **Upper deck**

Cooling Pipes in Chambers, diameter **None** Minimum thickness **---** Are they galvanised externally **---**

How are they arranged in the chambers **-----**

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers **Brine heater fitted.**

The foregoing is a correct description of the Insulation and Appliances.

AKTIEBOLAGET GÖTAVERKEN

Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery and Insulation **Yes**

Is the Refrigerating Machinery and Appliances duplicate of a previous case **Yes** If so, state name of vessel **"Sofie Bakke", "Knut Bakke"**

If the survey is not complete, state what arrangements have been made for its completion and what remains to be done **Complete.**

General Remarks (State quality of workmanship, opinions as to class, &c.) **The reffigerating machinery and appliances of this vessel have been fitted under special survey in accordance with the approved plans under our inspection and to our satisfaction. The workmanship and materials are good. The electric current for the refrigerating plant is supplied by 3 diesel oil engine driven generators á 170 kW. The spare gear has been checked on board.**

Please also see Oslo Surveyors' report No. 5796.

The refrigerating installation of this vessel is eligible in our opinion to be classed in the Register Book and to have record of +Lloyd's RMC 9,45.

It is submitted that the vessel is eligible for TIV RECORD. +LLOYDS RMC 9.45.

*Reell
4/10/45.*

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

| REFRIGERATING MACHINES. | | | | | System of (1) Refrigerating (2) Insulating the Chambers. | Ice melting capacity per 24 hours. Tons. | Is Refrigerating Machinery Electrically Driven? | INSULATED CARGO CHAMBERS. | |
|-------------------------|------------------------|---------|--|--------------------------|---|---|--|------------------------------|----------------------------|
| No. of Units. | No. of Compressors. | System. | Makers. | Date of Construction. | | | | No. | Capacity. Cubic ft. |
| 4 | 4 | Ammonia | A/S Drammens Jernstøberi & Mek. Verksted | 1943 | Brine & Air Gran. cork. | 65 | Yes | 6 | 102738 |

Fee **Kr. 228:00** Fee applied for, **26/9 19 45.**
Late fee **Kr. 25:00**
Travelling Expenses **---** Received by me, **---** 19 **---**

FRI. 12 OCT 1945

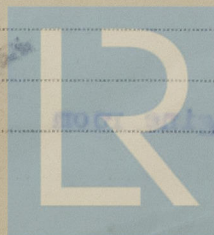
Committee's Minute

Assigned

+ Lloyd's RMC

9.45

Sten Johnsen
Mr. Hoffmann
Surveyor to Lloyd's Register.



© 2020

Lloyd's Register
Foundation