

Report on Refrigerating Machinery and Appliances.

Received at London Office

Date of writing Report 24th October 1947 When handed in at Local Office 5th November 1947 Port of BergenNo. in Reg. Book. Survey held at Lervik, Bergen, Alesund Date: First Survey 5th February Last Survey 22nd September 1947(Number of Visits 14)on the Refrigerating Machinery and Appliances of the Steel S.S. "BONITA" ex A/S & M/S Trawler "KITTERN" Tons Gross 506
Net 210Vessel built at Breivik By whom built Loek, Wilton & Gemmell Ltd Yard No. 720 When built 1943Owners AHLGREN & CAPPELEN Port belonging to OSLO Voyage LivornoRefrigerating Machinery made by A/S Atlas, Copenhagen Machine Nos 2470-2540 When made 1947Insulation fitted by CHRISTIAN BERNER A/S When fitted 1947 System of Refrigeration AMMONIAMethod of cooling Cargo Chambers Direct expansion Insulating Material used GRAND SLAB CORK & ROCKWOOLNumber of Cargo Chambers insulated 2 Total refrigerated cargo capacity 17900 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY.

Where placed In space erected at after end of engine room
Starboard sideRefrigerating Units, No. of 2 No. of machines 2 Is each machine independent YesTotal refrigeration or ice-melting capacity in tons per 24 hours 40 Are all the units connected to all the refrigerated chambers YesCompressors, driven direct or through single reduction gearing. Compressors, single or double acting single If multiple-effect compression ✓Are relief valves or safety discs fitted Yes No. of cylinders to each unit 2 Diameter of cylinders 170 mmDiameter of piston rod ✓ Length of stroke 140 mm No. of revolutions per minute 510Motive Power supplied from 2 off 70 H.P. steam engines
(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 1 Diameter 7 1/2"Length of stroke 7" Working pressure 200 LB/IN² Diameter of crank shaft journals and pins 3" BothBreadth and thickness of crank webs 4 1/2" - 2 1/8" No. of sections in crank shaft 1 Revolutions of engines per minute 510Oil Engines, type ✓ 2 or 4 stroke cycle ✓ Single or double acting ✓ B.H.P. ✓No. of cylinders ✓ Diameter ✓ Length of stroke ✓ Span of bearings as per Rule ✓Maximum pressure in cylinders ✓ Diameter of crank shaft journals and pins ✓Breadth and thickness of crank webs ✓ No. of sections in crank shaft ✓ Revolutions of engine per minute ✓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 ✓ Cubic capacity of each ✓ Internal diameter ✓ thickness ✓Seamless, lap welded or riveted longitudinal joint ✓ Material ✓ Range of tensile strength ✓ Working pressure by Rules ✓Electric Motors, type ✓ No. of ✓ Rated ✓ Kilowatts ✓ Volts ✓at ✓ revolutions per minute. Diameter of motor shafts at bearings ✓Reduction Gearing ✓ Pitch circle diameter pinion ✓ Main wheel ✓ Width of face ✓Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, pinion ✓ Main wheel ✓Pinion shafts, diameter at bearings ✓ Main wheel shaft, diameter at bearings ✓Gas Condensers, No. of 2 Cast iron or steel casings ✓ Cylindrical or rectangular ✓ Are safety valves fitted ✓to casings No No. of coils in each 28 Material of coils S.M. Steel Can each coil be readily shut off or disconnected YesWater Circulating Pumps, No. and size of pumps available 2, each 5300 Gals. how worked by motors Gas Separators, No. of 2Gas Evaporators, No. of 2 Cast iron or steel casings S.M. Steel Pressure or gravity type ✓ If pressure type, are safety valves fitted ✓No. of coils in each casing ✓ Material of coils ✓ Can each coil be readily shut off or disconnected ✓Direct Expansion or Brine Cooled Batteries, No. of 68 Are there two separate systems, so that one may be in use while the other is being cleared of snow ✓No. of coils in each battery 5 Material of coils S.M. Steel Can each coil be readily shut off or disconnected YesTotal cooling surface of battery coils 365 sq. m Is a watertight tray fitted under each battery ✓Air Circulating Fans, Total No. of None each of ✓ cubic feet capacity, at ✓ revolutions per minuteSteam or electrically driven ✓ Where spare fans are supplied are these fitted in position ready for coupling up ✓Brine Circulating Pumps, No. and size of, including the additional pump ✓ how worked ✓Brine Cooling System, closed or open ✓ Are the pipes and tanks galvanised on the inside ✓No. of brine sections in each chamber ✓Can each section be readily shut off or disconnected ✓ Are the control valves situated in an easily accessible position ✓

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

(MADE AND PRINTED IN ENGLAND.)

Are thermometers fitted to the outflow and to each return brine pipe... Where the tanks are closed are they ventilated as per Rule...
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...
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 (SHELL & TUBE)						
„ Evaporator Coils						
„ Condenser Headers and Connections						
„ Condenser Casings						
„ Evaporator Casings						
NH ₃ Condenser, Evaporator and Air Cooler Coils after erection in place						
Brine Piping after erection in place						

Have important steel castings and forgings been tested in accordance with the Rules... Please see Copenhagen Report No 12213.

Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory... Yes.

Dates of test... 22nd September... Density of Brine... by... 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

atmosphere... 11°C 52°F... cooling water inlet and discharge... 13°C & 15°C... gas in condensers... 17°C... and evaporators... -38°C

the average temperature of the refrigerated chambers... -30°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 to... -19°C... Rise of 20°F

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: None.

The foregoing is a correct description of the Refrigerating Machinery.

Manufacturer.

DESCRIPTION OF INSULATION.

IN LOWER HOLD CHAMBERS.						IN 'TWEEN DECK CHAMBERS. SO THAT UPPER & LOWER HOLD IS ONE CHAMBER				
	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.	Inner Lining.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.	Inner Lining.
Frame No. 39 (Boiler Room)	A	✓	CARDBOARD & 1 1/2" PINE	SLAB CORK.	20 cm.	✓				
Frame No. 64 (Engine Room)	A	✓	CARDBOARD & 1 1/2" PINE	ROCKWOOL	30 cm.	✓				
Frame No. 60	F	✓	CARDBOARD & 1 1/2" PINE	ROCKWOOL	30 cm.	✓				
Frame No. 77 (After Peak)	F	✓	CARDBOARD & 1 1/2" PINE	SLAB CORK.	20 cm.	✓				
Sides ... FOREHOLD...	✓					✓	CARDBOARD & 1 1/2" PINE	GRANULATED SLAB CORK	23 cm.	✓
Overheading ...	✓					✓	CARDBOARD & 1 1/2" PINE	SLAB CORK	20 cm.	✓
Floors of Chambers ...	2" APHOLD.	✓	CARDBOARD & 2" PINE.	SLAB CORK.	20 cm.	2" PINE	✓	CARDBOARD & 1 1/2" PINE	SLAB CORK	20 cm.
SIDES APHOLD	✓					✓	CARDBOARD & 1 1/2" PINE	SLAB CORK	20 cm.	✓
Trunk Hatchways						✓				
Thrust Recess, Sides and Top						✓				
Tunnel Sides and Top						✓				
Tunnel Recess, Front and Top						✓				

Frames or Reverse Frames, Face... Bulkhead Stiffeners, Top... Ribband on Top of Decks... Side Stringers, Top... Web Frames, Sides... Brackets, Top... Insulated Hatches, Main... Hatchway Coamings, Main... Hold Pillars... Masts... Ventilators...

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... Are insulated plugs fitted to ventilators... cargo ports... and side lights... 2" PINE CEILING ON TOP OF OUTER LINING PROJECTING BEYOND HATCHWAYS

Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected... Yes... if so, how... OUTER LINING PROJECTING BEYOND HATCHWAYS

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. AIRPIPE TO AIRSPACE ON TUNNELTOP EXTENDING TO PEAK

and for draining the tank top. SCUPPER WITH LIQUID SEAL TO CLOSED DRAINTANK

Fireproof Insulation. Is the insulation and woodwork fireproof in way of bunkers or any surfaces exposed to excessive heat... Yes... 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... 2" x 2" - 14" floors... 2" x 2" - 14" tunnel top... 2" x 2" - 14" fixed or portable ARE SCREENS FITTED OVER THE BRINE GRIDS AT CHAMBER SIDES... Yes... hinged or permanently fixed... Yes

Thermometer Tubes, No. and position in each chamber... 2 in each hold as per plan approved 19/8-47 & Secretary's letter diameter... 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... Drains to engine room bilge. Self-cleaning cocks fitted in brine return room... fan room... water circulating pump room... Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers...

Sounding Pipes, No. and position in each chamber situated below the load water line.

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 Yes

How is the expanded metal secured in place Yes

How are the cork slabs secured to the steel structure of the vessel Fastened to wood grounds

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

Are they permanently fixed or collapsible, or portable Yes

Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors Yes Are the door frames efficiently insulated Yes

Are insulated plugs supplied for the doorways Yes Where are the doors worked from Yes

Cooling Pipes in Chambers, diameter OUTS. 42 mm Minimum thickness 4 mm Are they galvanised externally No

How are they arranged in the chambers As grids along shipsides, bulkheads and roofs

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers No provision

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

pr. pr. Christian Bernor A/S
Fredrik Gimmes Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery 9/12-46 and Insulation 22/2 5/12-46

Is the Refrigerating Machinery and Appliances duplicate of a previous case No If so, state name of vessel Complete

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, etc.) The Refrigerating machinery supplied by A/S. Atlas, Copenhagen Report No. 12213 has been installed onboard under special survey and the insulation has been fitted in accordance with approved plans and the requirements of the Rules and Secretary's letters and the workmanship is good.

The machinery has been tested under working conditions. Interim certificate issued as enclosed copy. Temperature tests were carried out by Mr. J. Lorentzen of Statens Kjølekøntor as I was unable to attend at Aalemund, where the tests had to be carried out.

It is submitted that this vessel is eligible for THE RECORD. + Lloyd's RMC 947 for temp -4°F Frozen cargoes only in Northern waters. The Surveyor should note that the restriction is for "Northern waters" instead of "Arctic Sea" R.J. 11/11/47.

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.				No.	Capacity.
2	4	AMMONIA	A/S ATLAS, COPENHAGEN	1947	1) DIRECT EXPANSION 2) GRANULATED & SLAB CORK & ROCKWOOL	Tons. 40	No	2	17,900

Fee kr. 480 : Fee applied for, 4/10 1947

Travelling Expenses kr. 100.- Received by me, 10/10 1947

2nd. Surveyor J. Lorentzen kr. 25- FRI 14 NOV 1947

Committee's Minute

Assigned + Lloyd's RMC 947 for temp -4°F

Frozen cargoes only in Northern Waters

CERTIFICATE WRITTEN.

