

Report on Refrigerating Machinery and Appliances.

Received at London Office 8 JUL 1957

Date of writing Report 28th June, 19 57 When handed in at Local Office 4th July, 19 57 Port of Gothenburg.

No. in Reg. Book. Survey held at Gothenburg Date: First Survey 13.12.1956. Last Survey 25.6. 19 57
51614 (Number of Visits 22)

-ed Cargo Installation on the Refrigerating Machinery and Appliances of the Motorship "ANNIE JOHNSON" Tons Gross 4935 Net 2758

Vessel built at Gothenburg By whom built A-B. Götaverken Yard No. 392 When built 1925 - 11

Owners Rederi A-B. Nordstjernan Port belonging to Stockholm Voyage --- Svenska Turbinfabriks A-B.

Refrigerating Machinery made by Ljungström. Machine Nos. 27000-01-02 When made 1956.

Insulation fitted by A-B. Lindholmens Varv When fitted 1925 and 1957 System of Refrigeration F - 12
Direct expansion, batteries

Method of cooling Cargo Chambers and air circulating. Insulating Material used Granulated cork and Rock wool

Number of Cargo Chambers insulated 2 Total refrigerated cargo capacity 47300 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed Starboard in Engine Room on the floor

Refrigerating Units, No. of 3 No. of machines 3 Is each machine independent Yes

Total refrigeration or ice-melting capacity in tons per 24 hours 48 Are all the units connected to all the refrigerated chambers Yes

Compressors, driven direct or through ~~reduction gearing~~ V-belt el. motor Compressors, single or double acting S A If multiple effect compression ---

Are relief valves or safety discs fitted Yes No. of cylinders to each unit 3 Diameter of cylinders 148 mm.

Diameter of piston rod Trunk type Length of stroke 148 mm. No. of revolutions per minute 500

Motive Power supplied from 1 aft 110 kW generator 2 x 112 kW generator
(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 --- Diameter ---
Length of stroke --- Working pressure --- Diameter of crank shaft journals and pins ---

Breadth and thickness of crank webs --- No. of sections in crank shaft --- Revolutions of engines per minute ---

Oil 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 ---
BHP 220 Volts

Electric Motors, type Drip proof No. of 3 Rated 3 x 45 ~~1000~~ 220 Volts
at 1550 - 1900 RPM 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 Steel Cylindrical or rectangular Cylindrical Are safety valves fitted
Shell & tube

to casings Yes No. of coils in each type Material of coils Alum. brass Can each coil be readily shut off or disconnected ---

Water Circulating Pumps, No. and size of pumps available 2 x 800 l/m how worked El-driven Gas Separators, No. of 3

Gas Evaporators, No. of --- Cast iron or steel casings --- 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 4 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 Material of ~~rods~~ pipe Steel Can each coil be readily shut off or
disconnected Yes Total cooling surface of battery coils 800 m² Is a watertight tray fitted under each battery Yes

Air Circulating Fans, Total No. of 16 each of --- cubic feet capacity, at 2900 revolutions per minute

Steam or electrically driven El. driven Where spare fans are supplied are these fitted in position ready for coupling up Yes

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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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. Yes
 Is the exhaust steam led to the main and auxiliary condensers. ---

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure. kg/cm ²	Hydraulic Test Pressure. kg/cm ²	Air Test Pressure. kg/cm ²	Stamped.	REMARKS.
Engine Cylinders (if tested) ...	4.5.56.		25	15	GF	
Freon	7.8.56.	10	42/28	21	GF	
Gas Compressors ...	8.10.56.	10	25	15	GF	
Oil Separators ...	4.7.56	10	25	15	GF	
Freon Multiple Effect Receivers ...	16.11.56	10	25	15	GF	
Condenser CNH ...	12.10.56	10	25	15	GF	
Air cooling batteries	31.10.56	10	25	15	SS	
Evaporator Coils ...	29.5.56.	10	25	15	GF	
Heat exchangers	31.10.56	10	25	15	SS	
Condenser Heaters and Connections ...	31.10.56	10	35	15		
Freon filter dryer						
Condenser Casings ...						
Valve manifold						
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. Yes
 Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory. Yes
 Dates of test 23.4 - 26.4. 1957. 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 --- & ---, outflow and return brine --- & --- atmosphere. 12 cooling water inlet and discharge. 26 & 27 gas in condensers 29.3 and evaporators -26°
 the average temperature of the refrigerated chambers. -20°C and the rise of temperature in these chambers upon the expiration of --- hours
 time after the machinery and cooling appliances have been shut off. Balance test.

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:-

- 1 thermostatic expansion valve of each size.
- 1 spare charge for Freon filter dryer.
- 1 combined spindle and valve for each large size of Freon valves.
- 1 Freon valve of each size used.
- 1 set of flanges with bolts and gaskets for each Freon pipe
- Lengths and bends of Freon pipes.
- 1 pressure gauge for suction side.
- 1 pressure gauge for delivery side.
- 1 fan wheel.
- 10 tubes for condensers and oil coolers.

Tools:-

- All necessary tools and assorted spanners.
- 1 leak detector lamp.
- 1 Freon charging pipe with valve.
- 1 tube expander.

The foregoing is a correct description of the Refrigerating Machinery.

DESCRIPTION OF INSULATION.

IN LOWER HOLD CHAMBERS.

IN 'TWEEN DECK CHAMBERS.

	IN LOWER HOLD CHAMBERS.					IN 'TWEEN DECK CHAMBERS.				
	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto. mm.	Inner Lining. mm.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto. mm.	Inner Lining. mm.
Frame No. (Fore Peak)	A									
Frame No.	F									
Frame No.	A									
Frame No.	F									
Frame No.	A									
Frame No. 86	A		Gran. cork	170 ✓	19			Gran. cork	170 ✓	19
			Rock wool	50 ✓				Rock wool	50 ✓	
Frame No. 112	A		Gran. cork	200	19			Gran. cork	200 ✓	19
			Rock wool	50				Rock wool	50 ✓	
Frame No. (Engine Room)	A									
Frame No.	F									
Frame No.	A									
Frame No.	F									
Frame No.	A									
Frame No. (After Peak)	F									
Sides ...			Gran. cork	265 ✓	19			Gran. cork	265 ✓	19
Overheading ...			Rock wool	50 ✓				Rock wool	50 ✓	19
Floors of Chambers ...			Gran. cork	235 ✓	2 x 17			Gran. cork	235	2 x 17
			Gran. cork	As prev.	As prev.			Gran. cork	As prev.	As prev.
Trunk Hatchways ...										
Thrust Recess, Sides and Top										
Tunnel Sides and Top										
Tunnel Recess, Front and Top										

Frames or Reverse Frames, Face 230 x 90 x 11.5

Bulkhead Stiffeners, Top As previously Bottom As previously and Face

Ribband on Top of Decks As previously

Side Stringers, Top --- Bottom --- and Face

Web Frames, Sides --- and Face ---

Brackets, Top --- Bottom --- and Face

Insulated Hatches, Main As previously Bilge As previously Manhole As previously

Hatchway Coamings, Main As previously Bilge

Hold Pillars As previously

Masts --- Ventilators As previously

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. Yes cargo ports. --- and side lights. ---

Is the insulation of the lower hold floor ~~and bulkhead top~~ in way of the hatchways protected. Yes if so, how. Wood air cases

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 50 mm. air spaces.

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. ---

Cargo Battens, Dimensions and spacing, sides 2 x 2" - 14" floors. --- ~~xxxxx~~

fixed or portable. Fixed Are screens fitted over the brine grids at chamber sides. --- hinged or permanently fixed. ---

Thermometer Tubes, No. and position in each chamber. Distance thermometers. ---

diameter. --- are they fitted in accordance with Section 3, Clause 8.

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. Scuppers to bilges, as previously.

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. Refrigerating machinery placed in ER floor, starboard side.

rine return room. --- fan room. --- water circulating pump room. ---

Manufacture all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers. Yes.

0293 2/2

Sounding Pipes, No. and position in each chamber situated below the load water line As previously.
 Diameter --- 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 ---
 Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans ---
 Are they permanently fixed or collapsible, or portable ---

Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors --- Are the door frames efficiently insulated ---
 Are insulated plugs supplied for the doorways --- Where are the doors worked from ---
 Cooling Pipes in Chambers, diameter --- 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 Hot gas defrosting.

The foregoing is a correct description of the Insulation and Appliances.
 By ÅKERBOLAGET LINDHOLMENS VARV Builders.

Gen. app. and Sec. letter Eng. 28/9 & 30/10 - 1956.
 Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery --- and Insulation 27.9.56.
 Is the Refrigerating Machinery and Appliances duplicate of a previous case No If so, state name of vessel ---
 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 refrigerated cargo installation of this ship has been installed and the insulation altered under the supervision of the undersigned with satisfactory results. The previously granulated cork insulation has been carefully examined and refitted as necessary and the new insulation is also good and in accordance with approved plans. The refrigerated installation has been built under Special Survey as per Stockholm Surveyors report No.10862. A balance test has been carried out, and the results have been forwarded under separate cover. The refrigerated cargo installation is in my opinion eligible to be classed in the Register Book with notation of +Lloyd's RMC 6,57 for temp. 10°F. in No.3 hold and lower tween deck with a sea temp. of 86°F. maximum.

Note 1:- Plans are retained in the meantime for dealing with the sister ship m.s. "Axel Johnson", which are at present at this port for re-building and re-engining.

Note 2:- Part of this survey has been carried out by G. Uno on the 25th and 26th April, 1957 between 19.00 24.00 - 03.00. (Balance test).

Note 3:- Certificates forwarded under separate cover.

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.
3	3 3 x 3 cyl	F-12	Svenska Turbinfab- riks A-B Ljung- ström.	1956	Direct exp. Gran. cork Rock wool	48	Yes	2	37300

Fee Kr. 750:00 (Fee applied for, 4/7 19 57
 Late Fee: Kr. 100:00
 Travelling Expenses Kr. 21:00 (Received by me, 19 --)

N. A. Fikberg
 Surveyor to Lloyd's Register.

Committee's Minute FRIDAY 9 AUG 1957

Assigned + Lloyd's RMC 6.57 SRMC 6.57

to maintain temp. 10°F. with sea temp.
 86°F. maximum. CERTIFICATE WRITTEN



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