

## Report on Refrigerating Machinery and Appliances.

Date of writing Report 21/12 1956 When handed in at Local Office 19 Port of Stockholm  
 No. in Norrköping &  
 Reg. Book. Survey held at Eskilstuna Date: First Survey 4.5 Last Survey 16.11 1956.  
51614 (Number of Visits 8)

on the Refrigerating Machinery and Appliances of the m/s "ANNIE JOHNSON" Tons (Gross 5017 Net 2879)  
 Vessel built at Gothenburg By whom built A/B Götaverken Yard No. - When built 1925  
 Owners Rederi A/B Nordstjernan Port belonging to Stockholm Voyage -  
 Refrigerating Machinery made by STAL, Finspong Machine Nos 27000-01-02 When made 1956  
 Insulation fitted by - When fitted - System of Refrigeration F 12  
 Method of cooling Cargo Chambers - Insulating Material used -  
 Number of Cargo Chambers insulated - Total refrigerated cargo capacity 47.300 cubic feet

## DESCRIPTION OF REFRIGERATING MACHINERY. Where placed.

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 -  
 Compressors, driven direct ~~by~~ V-belt el. motors. Compressors, single or double acting SA 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 -  
 (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 -  
 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 Steel Cylindrical or rectangular Cylindrical Are safety valves fitted -  
 to casings Yes No. of coils in each Tube & shell Material of aluminum tubes brass Can each coil be readily shut off or disconnected -

Water Circulating Pumps, No. and size of pumps available - how worked - Oil -  
 Freon Receivers - Gas Separators, No. of 3  
 Gas Expanders, No. of 1 Cast iron or steel casings Steel Pressure or gravity type Pressure If pressure type, are safety valves fitted Yes No. of coils in each casing - Material of coils - Can each coil be readily shut off or disconnected -

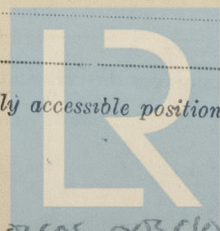
Direct Expansion or Brine Cooled Batteries, No. of 2 Are there two separate sections so that one may be in use while the other is being cleared of snow Yes No. of sections in each battery 2 Material Steel Can each coil be readily shut off or disconnected - Total cooling surface of battery coils 800 Is a watertight tray fitted under each battery -

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

Details marked as indicated below:-

### HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure. kg/cm <sup>2</sup>	Hydraulic Test Pressure. kg/cm <sup>2</sup>	Air Test Pressure. kg/cm <sup>2</sup>	Stamped.	REMARKS.
Engine Cylinders (if tested) ...						
Freon Compressors ...	4.5.56 1) 7.8.56 2)	10	1) 25 2) 42/28	15 21	GF	
Oil Separators ...	8.10.56	10	25	15	GF	
Freon Receivers ...	4.7.56	10	25	15	GF	
Freon Condenser ...	16.11.56	10	25	15	GF	
Freon Filter Drier ...	29.5.56.	10	25	15	GF	One in number
Heat exchangers ...	31.10.56.	10	25	15	SS	four in number
Air cooling batteries ...	12.10.56.	10	25	15	GF	
Valve manifold ...	31.10.56.	10	35	15	SS	two sections
NH <sub>3</sub> 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... -

Dates of test... 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... cooling water inlet and discharge... &... gas in condensers... and evaporators... the average temperature of the refrigerated chambers... and the rise of temperature in these chambers upon the expiration of... hours time after the machinery and cooling appliances have been shut off...

### SPARE GEAR.

Are the working parts of the machines, pumps and motors respectively, interchangeable.

Has the spare gear required by the Rules been supplied... To be checked onboard

Additional Spare Gear Supplied:-

The foregoing is a correct description of the Refrigerating Machinery.

SVENSKA TURBINFABRIKS  
AKTIEBOLAGET LJUNGSTRÖM  
Kylavdelningen  
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.
Frame No. (Fore Peak)	A									
Frame No.	F									
Frame No.	A									
Frame No.	F									
Frame No.	A									
Frame No. (Boiler Room)	F									
Frame No. (Engine Room)	A									
Frame No.	F									
Frame No.	A									
Frame No.	F									
Frame No.	A									
Frame No.	F									
Frame No. (After Peak)	A									
Sides										
Overheading										
Floors of Chambers										
Trunk Hatchways										
Thrust Recess, Sides and Top										
Tunnel Sides and Top										
Tunnel Recess, Front and Top										

Frames or Reverse Frames, Face... Bottom... and Face

Bulkhead Stiffeners, Top... Bottom... and Face

Ribband on Top of Decks... Bottom... and Face

Side Stringers, Top... and Face

Web Frames, Sides... Bottom... and Face

Brackets, Top... Bilge... Manhole

Insulated Hatches, Main... Bilge

Hatchway Coamings, Main... Bilge

Hold Pillars... Ventilators... heels of pillars

Masts... tank, air, and sounding pipes... and side lights

Are insulated plugs fitted to provide easy access to bilge suction roses... cargo ports... and side lights

and manhole doors of tanks... Are insulated plugs fitted to ventilators... if so, how

Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected... if so, how

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

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... floors... tunnel top

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

Thermometer Tubes, No. and position in each chamber... are they fitted in accordance with Section 3, Clause 8

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

Draining Arrangements. What provision is made for draining the inside of the chambers

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... water circulating pump room

brine return room... fan room

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

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

Diameter.....Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 11.....

Are all wood linings tongued and grooved.....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.....

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

Builders.

Plans generally approved and Secretary's letters Eng. 28/9 & 30/10 1956.

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

(If not, state date of approval)

Is the Refrigerating Machinery and Appliances duplicate of a previous case.....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. The machinery and appliances to be fitted onboard vessel to the satisfaction of the Society's Surveyors.

**General Remarks** (State quality of workmanship, opinions as to class, &c.).....

The compressors, condensers, oil separators, freon receiver, filter drier, heat exchangers, air cooling batteries and valve manifold for this installation have been manufactured in accordance with the Rules, approved plans, and the Secretary's letters and have been tested with water and air pressure without mountings fitted with satisfactory results.

The material and workmanship are good.

**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.
3	3 (3x3) cyls	F-12	STAL Norrköping	1956	Direct exp.	Tons 48	Yes	2	abt. 47.300 Cubic ft.

Stock material. Fee previously charged.

Fee ..... £ : : Fee applied for, ..... 19.....

Travelling Expenses £ : : Received by me, ..... 19.....

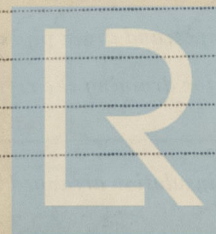
Surveyor to Lloyd's Register.

THURSDAY 10 JAN 1957

Committee's Minute

Assigned

Deferred for completion



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THURSDAY 10 JAN 1957

Certificate to be sent to