

Report on Refrigerating Machinery and Appliances.

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13567 (Number of Visits 12)

on the Refrigerating Machinery and Appliances of the S/S. HILARY Tons Gross 7415 Net 4206

Vessel built at _____ By whom built _____ Yard No. _____ When built _____

Owners Booth S.S. Co Ltd. Port belonging to Liverpool Voyage _____

Refrigerating Machinery made by J.E. HALL LTD Machine Nos. 17521 + 17651 When made 1957

Insulation fitted by _____ When fitted _____ System of Refrigeration A.6.

Method of cooling Cargo Chambers D.E. Coolers Insulating Material used _____

Number of Cargo Chambers insulated _____ Total refrigerated cargo capacity _____ cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed

Refrigerating Units, No. of 2 No. of machines 2 Is each machine independent Yes

Total refrigeration or ice-melting capacity in tons per 24 hours 23 Are all the units connected to all the refrigerated chambers Yes

Compressors, driven direct or through single reduction gearing. Compressors, single or double acting S/A. If multiple effect compression no

Are relief valves or safety discs fitted Yes No. of cylinders to each unit 2 Diameter of cylinders 6 1/2"

Diameter of piston rod Trunk piston Length of stroke 5" No. of revolutions per minute 350

Motive Power supplied from 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 ✓ Diameter ✓

Length of stroke ✓ Working pressure ✓ Diameter of crank shaft journals and pins 3" and 2 5/8"

Breadth and thickness of crank webs 2 5/8 x 3 1/2 OVAL No. of sections in crank shaft One Revolutions of engines per minute 350

Oil Engine 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 disc

to casings Yes No. of coils in each 84 Material of coils Yacalbro Can each coil be readily shut off or disconnected no

Water Circulating Pumps, No. and size of pumps available _____ how worked _____ Gas Separators, No. of 2

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 2 Are there two separate systems, so that one may be in use while the other is being cleared of snow no

No. of coils in each battery As approved Material of coils Steel Can each coil be readily shut off or disconnected Yes

Total cooling surface of battery coils 5100 sq. feet Is a watertight tray fitted under each battery Yes

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 _____

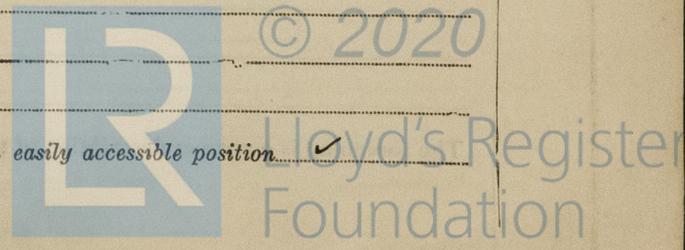
Brine Cooling System, closed or open _____ Are the pipes and tanks galvanised on the inside _____

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 _____

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. lbs/A.	Hydraulic Test Pressure. lbs/A.	Air Test Pressure. lbs/A.	Stamped.	REMARKS.
Compressor Engine Cylinders (if tested)	4-10-57	120	350	200	FMS	
Gas Compressor Crankcases	4-10-57	-	200	150	FMS	
Separators & Manifolds	4-10-57	120	350	200	FMS	
Liquid Multiple Effect Receivers	17-10-57	120	350	200	HE	
Condenser Coils End Covers	17-10-57	30	150	-	HE	
Evaporator Coils Drums	17-10-57	120	350	200	HE	
Suction Vessels	15-10-57	120	350	200	HE	
Condenser Headers and Connections	17-10-57	120	350	200	HE	
Condenser Casings & tubes	11-10-57	120	350	200	HE	
Evaporator Casings	15-10-57	120	350	200	HE	
Condenser, Evaporator and Air Cooler Coils after erection in place	18-10-57	120	350	200	HE	
Brine Piping after erection in place						

Have important 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 Yes
 Has the spare gear required by the Rules been supplied Yes
 Additional Spare Gear Supplied:
 One connecting rod, top and bottom end bearings
 2 - main bearing bushes
 2 - Springs for oil relief valve
 1 - Hand oil pump assembly
 3 - Sight Glasses
 12 - Safety discs
 2 - A.G. Gauges
 1 - each Deliv' + suction thermometer
 8 - Condenser tubes
 1 - set Bellows, H.P. cut out
 1 - Thermostat (liquid)
 1 - Sight Glass for liquid receiver
 2 - Sight Glasses - liquid strainer
 1 - set valve packing each size

The foregoing is a correct description of the Refrigerating Machinery.

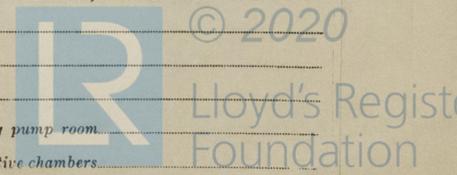
J. & E. WALL, LTD

DIRECTOR, 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.										
Frame No. (Fore Peak)	A									
Frame No.	F									
Frame No.	A									
Frame No.	F									
Frame No.	A									
Frame No. (Boiler Room)	A									
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
 Bulkhead Stiffeners, Top Bottom and Face
 Ribband on Top of Decks
 Side Stringers, Top Bottom and Face
 Web Frames, Sides and Face
 Brackets, Top Bottom and Face
 Insulated Hatches, Main Bilge Manhole
 Hatchway Coamings, Main Bilge
 Hold Pillars
 Masts Ventilators
 Are insulated plugs fitted to provide easy access to bilge suction roses tank, air, and sounding pipes heels of pillars and manhole doors of tanks Are insulated plugs fitted to ventilators cargo ports and side lights
 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 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 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..... 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. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery..... and Insulation.....

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.....

General Remarks (State quality of workmanship, opinions as to class, &c.) The Refrigerating machinery and appliances of this vessel have been constructed under Special Survey in conformity with the Society's Rules, Regulations and the Secretary's Letter.

The scantlings and arrangements are in accordance with those shown on the approved plans. The materials and workmanship are good.

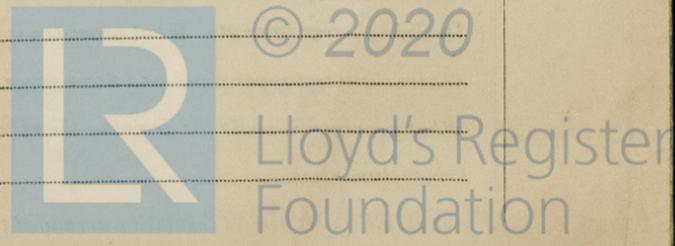
In my opinion the refrigerating machinery and appliances of this vessel will be eligible for the notation of Lloyd's RMC (with date) when the installation and testing have been satisfactorily carried out and the spare gear verified.

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.				Tons.	No.
2	4	DICHLORO- DIFLUORO- METHANE	J. F. Hall	1957	✓ ✓	23	No	✓	✓

Fee £ : : (Fee applied for, 19.....) H. Green + P. Jones
Travelling Expenses £ : : (Received by me, 19.....) Surveyor to Lloyd's Register.

Committee's Minute.....
Assigned..... See in J.F. 148160



Certificate to be sent to.....