

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

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 33064. (No. of Visits 13)

on the Refrigerating Machinery and Appliances of the M. V. "SALACIA" Tons { Gross 5494.99
 Net 3286.12

Vessel built at Glasgow By whom built Harland & Wolff Ltd. Yard No. 982 When built 1931

Owners Donaldson Line Port belonging to Glasgow Voyage 1

Refrigerating Machinery made by J & S Hall Ltd. Machine Nos. 9687. When made 1936.

Insulation fitted by Cork Insulation Co When fitted 1931 System of Refrigeration CO₂

Method of cooling Cargo Chambers Air. Insulating Material used Gran Cork & Silicate Cotton

Number of Cargo Chambers insulated 2+3 holds + lower Total refrigerated cargo capacity 164,000. cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed

Refrigerating Units, No. of ☒ No. of machines ☒ Is each machine independent ☒

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

Compressors, driven direct or through ^{single} _{double} reduction gearing. Compressors, single or double acting ☒ If multiple effect compression are relief valves or safety discs fitted ☒ No. of cylinders to each unit ☒ Diameter of cylinders ☒

Diameter of piston rod ☒ Length of stroke ☒ No. of revolutions per minute ☒

Motive Power supplied from ☒ (State number of boilers, 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 100 lb/sq. in. 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:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined ☒ What means are provided for cleansing their inner surfaces ☒

Is there a drain arrangement fitted at the lowest part of each receiver ☒ If made under survey ☒

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 ☒ Cast iron or steel casings ☒ Cylindrical or rectangular ☒ Are safety valves fitted ☒

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

Water Circulating Pumps, No. and size of ☒ how worked ☒ Gas Separators, No. of ☒

Gas Evaporators, No. of ☒ Cast iron or steel casings ☒ Pressure or gravity type ☒ 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 ☒ 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 ☒ Material of coils ☒ Can each coil be readily shut off or disconnected ☒

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 ☒

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 **Exhaust is its own surface condenser in base of machine.**

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						
BRINE PIPING AFTER ERECTION IN PLACE	30.4.37	25 lb/10"	95 lb/10"			

Have important steel castings and forgings been tested in accordance with the Rules ☒
Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory **yes**
Dates of test **10.8.37. 11.8.37.** Density of Brine **48** by **Twaddle** hydrometer
Temperatures (when the cargo chambers are cooled down to the required test temperatures)
or, delivery and return air at ~~direct expansion~~ brine cooled batteries **15°F. & 19°F.**, outflow and return brine **0°F. & 4°F.**
atmosphere **69°F.** cooling water inlet and discharge **66°F. & 70°F.** gas in condensers **81°, 82°F.** and evaporators **-8°F. -7°F.**
the average temperature of the refrigerated chambers **17.5°F.** and the rise of temperature in these chambers upon the expiration of **13.5** hours
time after the machinery and cooling appliances have been shut off **12.1°F.**

SPARE GEAR.

Are the working parts of the machines, pumps and motors respectively, interchangeable
Has the spare gear required by the Rules been supplied **yes.**
Additional Spare Gear Supplied:-

See London Report.

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.
FRAME No. (Fore Peak)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
FRAME No. 131	<input checked="" type="checkbox"/>	1" T.G. with Sph. Sheet Iron on face	Granulated Cork	3 1/2"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1" T.G. with Sph. Sheet Iron on face	Granulated Cork	3 1/2"	<input checked="" type="checkbox"/>
FRAME No. 103	<input checked="" type="checkbox"/>	- do. -	- do. -	12"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	- do. -	- do. -	9"	<input checked="" type="checkbox"/>
FRAME No. 79	<input checked="" type="checkbox"/>	- do. -	- do. -	10"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	- do. -	- do. -	10"	<input checked="" type="checkbox"/>
FRAME No. 78	<input checked="" type="checkbox"/>	- do. -	- do. -	3 1/2"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	- do. -	- do. -	3 1/2"	<input checked="" type="checkbox"/>
FRAME No. (Boiler Room)	<input checked="" type="checkbox"/>	- do. -	Silicate Cotton	12"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	- do. -	Silicate Cotton	12" + 10"	<input checked="" type="checkbox"/>
FRAME No. (Engine Room)	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
FRAME No.	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
FRAME No.	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
FRAME No.	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
FRAME No.	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
FRAME No. (After Peak)	<input checked="" type="checkbox"/>	1" T.G. with Sph. Sheet Iron on face	Granulated Cork	10"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1" T.G. with Sph. Sheet Iron on face	Granulated Cork	10"	<input checked="" type="checkbox"/>
SIDES	<input checked="" type="checkbox"/>	- do. -	- do. -	10"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	- do. -	- do. -	10"	<input checked="" type="checkbox"/>
OVERHEADING	<input checked="" type="checkbox"/>	1" + 1 1/2" T.G.	- do. -	7"	1/2" Bitumastic	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
FLOORS OF CHAMBERS	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
TRUNK HATCHWAYS	<input checked="" type="checkbox"/>	(Steel Trunk)				<input checked="" type="checkbox"/>	1" T.G. with Sph. Sheet Iron on face	Granulated Cork	10"	<input checked="" type="checkbox"/>
THRUST RECESS, SIDES AND TOP	<input checked="" type="checkbox"/>	None				<input checked="" type="checkbox"/>				
TUNNEL SIDES AND TOP	<input checked="" type="checkbox"/>	None				<input checked="" type="checkbox"/>				
TUNNEL RECESS, FRONT AND TOP	<input checked="" type="checkbox"/>	None				<input checked="" type="checkbox"/>				
FRAMES OR REVERSE FRAMES, FACE	Grounds extending 1" beyond toe of frame in Hold + Lower Turn Deck + 3" beyond in upper Turn Deck									
BULKHEAD STIFFENERS, TOP	Lugged BOTTOM Lugged AND FACE 5" x 1" beyond face of Stiffener as per approved Plans.									
RIBBAND ON TOP OF DECK	6" x 2" P.P. Cant. at Sides.									
SIDE STRINGERS, TOP	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
WEB FRAMES, SIDES	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
BRACKETS, TOP	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>				
INSULATED HATCHES, MAIN	Bilge P.P. frames with 2" T.G. on Bottom + 1 1/2" T.G. on Top Bilge P.P. frames 4" Span Cork double 1" T.G. MANHOLE 3" Cork double 1" T.G.									
HATCHWAY COAMINGS, MAIN	P.P. 7 1/2" thick 1/2" x 4" x 17 1/2" at sides and 19" at ends Bilge 9 1/2" P.P. 4" Cork double 1" T.G.									
HOLD PILLARS	2" Hair felt + 1" T.G.									
MASTS	<input checked="" type="checkbox"/>					<input checked="" type="checkbox"/>	4" Cork + 1" T.G.			
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 None and side lights None									
Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected	Yes if so, how 2" P.P. extending 2'-0" beyond line of hatch.									
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	Yes									
and for draining the tank top	Yes									
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" 12" apart floors Frames 2 1/2" x 1 1/2" in Stiffeners tunnel top Yes									
fixed or portable	Detachable on Sides. Are screens fitted over the brine outlets at chamber sides + bulk in Turn Deck or permanently fixed Permanent.									
Thermometer Tubes, No. and position in each chamber	6. as per approved Plan									
diameter	2" in line 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	Trapped Scupper & Ridge									
Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off	Screwed caps on top									
What provision is made for draining the refrigerating machinery room	2 1/2" Scupper & P.R. Bilge									
brine return room	2 1/2" Scupper & Bilge fan room 2 1/2" Scupper & Bilge water circulating pump room									
Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers	Yes									

Sounding Pipes, No. and position in each chamber situated below the load water line
Diameter $2\frac{1}{2} \times 2"$ 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 *Yes*

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans *Yes*
Are they permanently fixed or collapsible, or portable *Permanent.*

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 *Yes* Minimum thickness *Yes* Are they galvanised externally *Yes.*
How are they arranged in the chambers *In Ballast only.*

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers: *Introduction of Hot Brine*

The foregoing is a correct description of the Insulation and Appliances.
For the Cork Insulation. L. J. Hawkins Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery *Yes* and Insulation *Yes*
(If not, state date of approval)
Is the Refrigerating Machinery and Appliances duplicate of a previous case *Yes* 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 refrigerating machinery and appliances of this vessel have been built and installed under special survey. The insulation has been fitted in accordance with the approved plans. The materials and workmanship are good.
The vessel is eligible in our opinion, to have the record of Lloyds R.M.C. 8-37.

LIST OF PLANS:

Insulated Cargo Spaces.
Insulation Details (2 Plans).
Insulation in way of Thermometer Tubes
Insulation - " - Hatch Trunks.
Insulated Hatchways & Hatch Coamings.

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	2	Cork. Anky.	J.E. Hall, Ltd.	1936	Air.	Tons.	No.	6	169,000.

Fee *Glasgow* £10:0:0 { Fee applied for, 23/8/37
London 5:0:0 { Received by me, 3.9.19 37/8/9.
Travelling Expenses £ : : {
T.R. McIlvenna
Surveyor to Lloyd's Register.
H. Campbell.

Committee's Minute **GLASGOW 24 AUG 1937**

Assigned *+ Lloyd's R.M.C. 8, 37.*

CERTIFICATE WRITTEN
26.8.37



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