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R. M. C. No. 54189

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Rpt. 17.

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office 11 JUN 1935)

Date of writing Report 24th April 1935 When handed in at Local Office 15 May 1935 Port of New Orleans La
No. in Reg. Book. 71923 Survey held at New Orleans Date: First Survey 11th March Last Survey 17th April 1935
(No. of Visits 12)

on the Refrigerating Machinery and Appliances of the S.S. Atlantida Tons {Gross 4191
Net 2476
Vessel built at Belfast By whom built Workman Clark & Co. Ltd Yard No. When built 1924
Owners Standard Nav. Corp. Port belonging to Leiba Voyage
Refrigerating Machinery made by Ingersoll Rand - N.Y.K. Machine No. When made 1935
Insulation fitted by Owners When fitted 1935 System of Refrigeration Steam Jet
Method of cooling Cargo Chambers cool air Insulating Material used Granulated cork
Number of Cargo Chambers insulated 2 Total refrigerated cargo capacity 170000 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed at fore end of after hold

Refrigerating Units, No. of one Single, double, or triple Cubic feet of air delivered per hour 550000
Total refrigeration or ice-melting capacity in tons per 24 hours 200 tons Are all the units connected to all the refrigerated chambers Yes

Compressors, driven direct or through single reduction gearing. Compressors, single or double acting No. of cylinders
Diameter of cylinders Diameter of piston rod Length of stroke No. of strokes per minute

Motive Power supplied from Steam Jet Type
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

Diesel 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
Electric Motors, type See Electrical Rept No. of 2 Rated Kilowatts 75
Volts at revolutions per minute. Diameter of motor shafts at bearings

Reduction Gearing, maximum shaft horse power at 1st pinion Revolutions per minute at full power at 1st pinion
2nd pinion 1st reduction wheel main shaft Pitch circle diameter, 1st pinion 2nd pinion
1st reduction wheel Main wheel Width of face, 1st reduction wheel Main wheel

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, 1st pinion 2nd pinion
1st reduction wheel Main wheel Flexible pinion shafts, diameter 1st 2nd
Pinion shafts, diameter at bearings, External, 1st 2nd Internal, 1st 2nd
Diameter at bottom of teeth of pinion, 1st 2nd Wheel shafts, diameter at bearings, 1st
Main Diameter at wheel shroud, 1st Main

Gas Condensers, No. of Cast iron or steel casings Cylindrical or rectangular
No. of coils in each Material of coils Can each coil be readily shut off or disconnected
Water Circulating Pumps, No. and size of 2 - 10 H.P. how worked Electrically Gas Separators, No. of

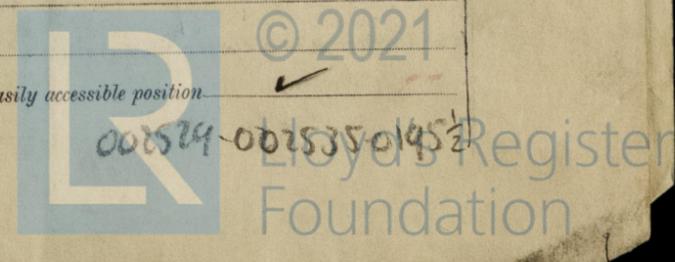
Gas Evaporators, No. of Cast iron or steel casings Pressure or gravity type
No. of coils in each casing Material of coils Can each coil be readily shut off or disconnected

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 Total cooling surface of battery coils Is a watertight tray fitted under each battery

Air Circulating Fans, Total No. of 4 each of 23000 cubic feet capacity, at revolutions per minute
Steam or electrically driven Electrically Where spare fans are supplied are these fitted in position ready for coupling up Yes
Main Water Circulating Pumps, No. and size of, including the additional pump 3 - 7 1/2 H.P. how worked Electrically

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

Im. & G. L. - F.



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

Steam Condensing Plant. State what provision is made for condensing steam, in terms of Section 4, Clauses 13 and 14

Condenser fitted for condensing steam from jets.

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						
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						

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

Dates of test *17th April 1935* Density of Brine by hydrometer

Temperatures (when the cargo chambers are cooled down to the required test temperatures) of air at the snow box and of the return air & or, delivery and return air at direct expansion or brine cooled batteries & outflow and return brine & atmosphere *78° F* cooling water inlet and discharge & gas in condensers and evaporators

the average temperature of the refrigerated chambers *78° F* and the rise of temperatures in these chambers upon the expiration of hours *cooled to 50° F in 5 hours.*

SPARE GEAR.

Are the machines in accordance with Section 4, Clause 2 of the Rules

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

ARTICLES SUPPLIED AS PER RULE. ADDITIONAL SPARE GEAR SUPPLIED.

The machinery is the steam jet type consisting of a tank in which the water is cooled through vacuum. The tank is built oblong shape of 1"- $\frac{3}{4}$ " and $\frac{1}{2}$ " plates welded with 4 compartments. Steam is blown through 4 valves into funnel shaped orifices, which are connected to the tank, taking the vapor away to the main Condenser. (2) Circulating pumps take the cool water and force it through grids, one in each hold. Through the grids the air from fans is forced on its way to the trunkways throughout the holds. (3) circulating pumps are provided for the Main Condenser, also (2) condensate pumps are attached. Two generators supply the current for all pumps which are driven electrically. (2) condensate pumps, (2) chill water pumps, (3) circ. pumps. The whole of the Machinery is enclosed in a space in the after lower hold - sheathed and insulated with 1" T & G and 6" Gran. cork. 10" I beams are secured to tank top and upon these the bedplates of the machinery are secured. 4 fans each giving 23,000 cubic feet of air per minute are fitted. All pipes and valves and fittings were tested to Rule Requirements.

The insulation of this vessel has been examined during construction also the Machinery during erection and completed in a satisfactory manner. During a trial of Machinery the time of lowering temperature in hold to 38° F was 8 hours. This installation after carrying a cargo of bananas to the required temperature about 50 F has proven satisfactory in every way and to attain these results only from 25% to 70% of the total power was used.

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

K. How Manufacturer.

DESCRIPTION OF INSULATION.

FRAME No.	ALL HOLDS 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		Gran. cork	9	1" T&G					
FRAME No.	F									
FRAME No.	A									
FRAME No.	F									
FRAME No.	A									
FRAME No. (Boiler Room)	F		Gran cork	9x10"	1" T&G					
FRAME No. (Engine Room)	A		Gran cork	9x10"	1" T&G					
FRAME No.	F									
FRAME No.	A									
FRAME No.	F									
FRAME No. (After Peak)	F		Gran cork	8x9"	1" T&G					
SIDES			do	9"	1" T&G					
OVERHEADING			do	8x9"	2-1" T&G					
FLOORS OF CHAMBERS			do	9"	1" T&G					
TRUNK HATCHWAYS			Gran cork	12"	1" T&G					
THRUST RECESS, SIDES AND TOP			do	12"	1" T&G					
TUNNEL GIRDERS AND TOP			do	12"	1" T&G					
TUNNEL RECESS, FRONT AND TOP			do	12"	1" T&G					

FRAMES OR REVERSE FRAMES, FACE *3"*

BULKHEAD STIFFENERS, TOP BOTTOM AND FACE *3"*

RIBBAND ON TOP OF DECKS

SIDE STRINGERS, TOP BOTTOM AND FACE

WEB FRAMES, SIDES *8"* AND FACE *3"*

BRACKETS, TOP *22"* BOTTOM *8"* AND FACE *3"*

INSULATED HATCHES, MAIN *1" T&G T&B: 4" Gran cork* BILGE *9"* MANHOLE *6"*

HATCHWAY COAMINGS, MAIN BILGE

HOLD PILLARS

MASTS *8"* VENTILATORS

Are insulated plugs fitted to provide easy access to bilge suction roses *Yes* tank, air, and sounding pipes *Yes* heels of pillars

and manhole doors of tanks *Yes* Are insulated plugs fitted to ventilators *removed* cargo ports *Yes* and side lights

Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected *Yes* if so, how *3" wood sheathing*

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

Coal Bunker Bulkheads, and Brine Outflow and Return Pipes passing through coal bunkers. Is the insulation, so far as practicable, fireproof

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 *5 1/2 x 1 1/2"* floors *2 x 2 1/2"* tunnel top *2 x 2 1/2"*

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

Thermometer Tubes, No. and position in each chamber *2 each* *trunk*

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

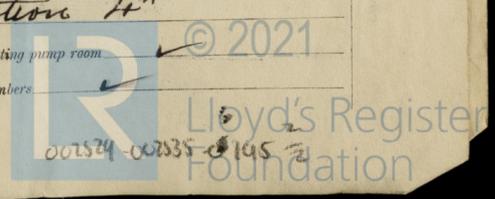
Draining Arrangements. Where the chambers are situated below the load water line, what provision is made for draining the inside of the chambers

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 *Separate suction 4"*

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 ✓ *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, inside dimensions, main *18" wide* and branch ✓

Are they permanently fixed or collapsible, or portable *fixed* State position in chambers *at sides of vessel*

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 ✓ 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 ✓
(If not, state date of approval)

Is the Refrigerating Machinery and Appliances duplicate of a previous case *Yes* If so, state name of vessels *"Amapala" "Grenada"*

If the survey is not complete, state what arrangements have been made for its completion and what remains to be done *Complete*

Note - Insulation duplicate of S.S. Amapala & S.S. Grenada; machinery slight alterations, principally fitting of 4 fans in lieu of 2, which is probably more satisfactory.

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

The insulation of this vessel has been examined during construction, also the machinery during erection, and all has been completed in a satisfactory manner. During working conditions the whole installation was proven satisfactory and is eligible in my opinion to have Lloyds R.M.C. H.35 for temperatures 50°F, and the Report is submitted for the favorable consideration of the Committee.

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	POWER.		INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours.	No.	Capacity.
1	✓	Steam Jet Vapour	Ingersal Rand. N.Y.	1935	Cool Water thro grids	5500000	250 TONS	2	170000 Cubic ft.

Fee \$150.00
Travelling Expenses \$10.00

{ Fee applied for, 20 May 1935
{ Received by me, 24-7 1935

W. Murray
Surveyor to Lloyd's Register.

Committee's Minute **NEW YORK MAY 29 1935**

Assigned *+ Lloyds R.M.C. H.35 for temp. 50°F "Experimental"*

FBI. 19 JUL 1935

