

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

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 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 Yard No. — When built 1924
 Owners Standard Nav. Corp. Port belonging to Libya 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 5500000

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 Rep 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

Brine 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 —

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 temperature in these chambers upon the expiration of ☒ hours
time after the machinery and cooling appliances have been shut off *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.

Manufacturer.

DESCRIPTION OF INSULATION.

all Holds
IN LOWER-HOLD CHAMBERS.

IN 'TWEEN DECK CHAMBERS.

BULKHEADS.

	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.	F									
FRAME NO. (Boiler Room)	A		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.	A									
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	8x9"	2-1" T & G.					
TRUNK HATCHWAYS			gran. cork	12"	1" T & G.					
THRUST RECESS, Sides AND TOP			do	12"	1" T & G.					
TUNNEL Sides AND TOP			do	12"	1" T & G.					
TUNNEL RECESS, Front AND TOP			do	12"	1" T & G.					

throughout
on top of 2x2 Thwarts.

main sk
tank tops

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 + B: 4' gran. cork* BILGE *9"* MANHOLE *6"*
HATCHWAY COAMINGS, MAIN ☒ BILGE ☒
HOLD PILLARS *8"*
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 *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 *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 *Yes.*

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

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, 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

Is the Refrigerating Machinery and Appliances duplicate of a previous case

Yes

If so, state name of vessel

"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 ss. Amapala & ss. 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	200	2	170000

Fee \$150.00

Travelling Expenses \$10.00

{ Fee applied for, 20 May 1935

{ Received by me, 24.7.1935

A. 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

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Experimental
Lloyd's Register
Foundation