

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office

30 OCT 1935

Date of writing Report

19

When handed in at Local Office

Port of London.

No. in

Reg. Book. Survey held at

38108

Date: First Survey 11th Sept 1935 Last Survey 18th October 1935

(No. of Visits

51X

on the Refrigerating Machinery and Appliances of the S.S. "FORT AMHERST" Tons { Gross.....
Net.....

Vessel built at Glasgow By whom built Blythwood S.B. Co. (Ld) Yard No. 39 When built 1935

Owners Manchester Liners Ltd. Port belonging to Voyage

Refrigerating Machinery made by J. E. Hall Ltd. Machine Nos. 9324 9328 When made 1935

Insulation fitted by When fitted System of Refrigeration CO₂ + Brine

Method of cooling Cargo Chambers Brine Grids Insulating Material used

Number of Cargo Chambers insulated 3 Total refrigerated cargo capacity 72,600 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed Tank top, - Starboard main E.R.

Refrigerating Units, No. of 2 Single, double, or triple Cubic feet of air delivered per hour

Total refrigeration or ice-melting capacity in tons per 24 hours 13 Are all the units connected to all the refrigerated chambers yes.

Compressors, driven direct or through ^{single} ~~double~~ reduction gearing. Compressors, single or double acting double No. of cylinders 2

Diameter of cylinders 2 13/16" Diameter of piston rod 1 1/4" Length of stroke 8" No. of strokes per minute 300 each

Motive Power supplied from Steam engine thro' two throw crankshaft.

Steam Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders 1 per unit Diameter 10"

Length of stroke 8" Working pressure Diameter of crank shaft journals and pins 4 1/2"

Breadth and thickness of crank webs 6 1/2" x 2 3/8" No. of sections in crank shaft one. Revolutions of engines per minute 150

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

Electric Motors, type No. of Rated Kilowatts

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 2 Cast iron or steel casings cast iron Cylindrical or rectangular rectangular

No. of coils in each 3 Material of coils S.D. Copper 3/4" b. x 10" d. Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of 2 - 6" x 4 1/2" S.A. how worked off crankshaft Gas Separators, No. of 4

Gas Evaporators, No. of 2 Cast iron or steel casings steel Pressure or gravity type gravity

No. of coils in each casing 2 Material of coils S.D. Steel 1 1/2" b. x 1 5/8" d. Can each coil be readily shut off or disconnected yes

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 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 3 - 4 1/2" x 5" x 6" V.D. how worked direct - Steam

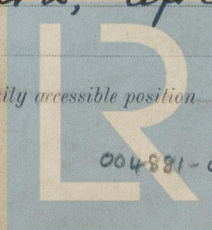
Brine Cooling System, closed or open open Are the pipes and tanks galvanised on the inside no.

No. of brine sections in each chamber Port Chamber 2, Starboard Chamber 2, Aft Chamber 3.

Can each section be readily shut off or disconnected yes Are the control valves situated in an easily accessible position yes.

NOTE - THE WORDS WHICH DO NOT APPLY SHOULD BE DELETED.

Im 331.-T.



© 2020

Lloyd's Register
Foundation

004531-004536-0176 1/2

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

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)	11-9-35 14-9-35		3500 lbs. sq. in.			
GAS COMPRESSORS	24-9-35	1000 lbs. sq. in.	3000 lbs. sq. in.	1500 lbs. sq. in.	Sh.	
" SEPARATORS	24-9-35	do.	do.	do.	Sh.	
" CONDENSER COILS	13-9-35 14-9-35	do.	do.	do.	Sh.	
" EVAPORATOR COILS	17-9-35	do.	do.	do.	Sh.	
" CONDENSER HEADERS AND CONNECTIONS I.L.C. RECEIVERS	24-9-35	do.	do.	do.	Sh.	
" CONDENSER CASINGS	13-9-35 14-9-35	5 to 10 lbs. sq. in.	20 lbs. sq. in.		Sh.	
" EVAPORATOR CASINGS		open top				
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

Dates of test 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 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 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.

1 set of rings for each compressor piston
1 set of steam piston rings for CO₂ machine.
1 piston and rod for each compressor with rings
1 C.I. liner for compressor
1 addl. brine pump fitted in engine room
2 bolts + nuts for main bearings
2 do. do. for conn. rod big end.
2 studs + nuts for conn. rod crosshead.
2 studs + nuts for engine do.
1 set valves for circulating water pump.
1 do. do. for brine pump.
1 set of 2 leather moulds.
3 lengths each of 1 1/2" + 1 1/4" bore H.I. piping.
3 H.I. bends each 1 1/2" + 1 1/4" bore
12 sockets + 12 backnuts each 1 1/2" + 1 1/4" bore
2 pair CO₂ pipe flanges.
1 setatchet securing dies for 1 1/2" + 1 1/4" pipe
1 regulator valve spindle
Sulphur brine cocks.
Assorted bolts + nuts
12 lubricator piston leathers
12 do. do. gland do.
2 sets Copper joint rings for compressors.
1 do. do. do. for other joints.
2 sets special metal rings for each compressor gland.

2 sets each 4 valves + springs for compressors
8 addl. springs for compress valves.
1 set steam piston rings for brine pump.
1 set valve springs for brine pump
2 springs for water relief valve.
2 do. do. brine do. do.
2 do. do. CO₂ safety valve.
1 pump for lubricator.
1 CO₂ pressure gauge.
1 hydrometer
2 brass cased thermometers
6 copper safety discs
1-8 CO₂ gauge valve + 3 spare pipes
1 set brasses for brine pump
1 fitted box for compressor parts
1 conn. rod for water pump

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

J. & E. HALL, LTD.

Manchester.

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.	F									
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.	A									
FRAME No. (After Peak)	F									
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

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 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. 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

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



© 2020

Lloyd's Register Foundation

Are thermometers fitted
Where the tanks are
Steam Condensers
ENGINE CYLINDER
GAS COMPRESSOR
SEPARATORS
CONDENSER
EVAPORATOR
CONDENSER
CONDENSER
EVAPORATOR
NH₃ CONDENSER
COOLER COIL
BRINE PIPING
Cooling Towers
Dates of test
Temperatures
or, delivery
atmosphere
the average
time after

1 set
1 set
1 pie
1 c.
1 ad
2 br
2 a
2 st
2 s
1 se
1
1 sc
3 br
3 H.
12 s
2 p
1 s
1 m
Su
as
12
12
2
2
1
2

AF
TI

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 _____
How is the expanded metal secured in place _____ Are cement facings reinforced with expanded steel lattice

How are the cork slabs secured to the steel structure of the vessel _____
Air Trunkways in Chambers, inside dimensions, main _____ and branch _____
Are they permanently fixed or collapsible, or portable _____ State position in chambers _____
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 _____
How are they arranged in the chambers _____ Are they galvanised externally

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.

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 _____

General Remarks (State quality of workmanship, opinions as to class, &c.) *The refrigerating machinery has been constructed under special survey and the materials and workmanship are good and it will be eligible for the notation + Lloyds R.M.C. (with date) when the installation and cooling tests have been satisfactorily completed.*

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					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.
						Tons.		Cubic ft.
2	2	Carl. Aubrey	J. E. Hall Ltd.	1935	10 Borse	13	3	12000

Fee applied for, 28.1. 1936.
Received by me, 31.1. 1936.
Travelling Expenses £
Committee's Minute GLASGOW 4-FEB 1936

D. Gemmell.
Surveyor to Lloyd's Register.

Assigned *See Glasgow Report*
No. 56500?