

## REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office

31 JUL 1941

Date of writing Report 9<sup>th</sup> July 1941 When handed in at Local Office 28: 7: 41 Port of Glasgow  
 No. in Reg. Book. Survey held at Glasgow Date: First Survey 11: 2: 41 Last Survey 41-7-1941  
 88213 (No. of Visits 14)

on the Refrigerating Machinery and Appliances of the M/V "GLOUCESTER" Tons { Gross 6476  
 Net 3679  
 Vessel built at Linthouse, Glasgow By whom built Alexander Stephen & Sons Ltd and No. 575 When built 1941  
 Owners New Zealand Shipping Co. Ltd. Port belonging to London Voyage  
 Refrigerating Machinery made by J. & E. Hall Ltd. Machine Nos. 10577 10578 When made 1941  
 Insulation fitted by Mersey Insulation Co. Ltd. When fitted 1941 System of Refrigeration CO<sub>2</sub> + Brine  
 Method of cooling Cargo Chambers Brine & Air Insulating Material used granulated cork  
 Number of Cargo Chambers insulated 16 Total refrigerated cargo capacity 268060 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 <sup>single</sup> } reduction gearing. Compressors, single or double acting If multiple effect compression  
<sub>double</sub>

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, 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

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 No. of coils in each Material of coils Can each coil be readily shut off or disconnected

Water Circulating Pumps, No. and size of pumps available 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 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 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.

L11137-T. (MADE IN ENGLAND.)



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Are thermometers fitted to the outflow and to each return brine pipe *yes* Where the tanks are closed are they ventilated as per Rule *yes*  
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 *no steam*

#### 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 <sub>3</sub> CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE	30-4-41, 16-5-41 12-6-41	15 lb	90 lb	90 lb		
BRINE PIPING AFTER ERECTION IN PLACE	26-6-41					

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 *no*

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

Has the spare gear required by the Rules been supplied

Additional Spare Gear Supplied:-

*Checked on board (15/12/41)*

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. 170 A (Fore Peak)	1 1/2"	Corrugated Sheet Iron	Gran. Cork	10"	1-1" P.			Gran. Cork	10"	1-1" P.
FRAME No. 139 F			"	10 1/2"	1-1" P.			"	6 1/2"	1-1" P.
FRAME No. 139 A			"	3"	1-1" P.			"	3"	1-1" P.
FRAME No. 111 F			"	8 1/2"	1-1" P.			"	6 1/2"	1-1" P.
FRAME No. 111 A			"	3"	1-1" P.			"	3"	1-1" P.
FRAME No. 97 F			"	10"	1-1" P.			"	10"	1-1" P.
FRAME No. 97 A	✓					✓				
FRAME No. (Boiler Room) F	✓					✓				
FRAME No. 63 A			Gran. Cork	10 1/2"	1-1" P.			Gran. Cork	10"	1-1" P.
FRAME No. 63 F			"	10"	1-1" P.			"	6 1/2"	1-1" P.
FRAME No. 37 A	✓							"	3"	1-1" P.
FRAME No. 10 F	✓							"	10"	1-1" P.
FRAME No. 10 A (aft peak)	✓					✓				
FRAME No. F	✓					✓				
FRAME No. F	✓					✓				
FRAME No. F	✓					✓				
FRAME No. (After Peak) F			Gran. Cork	13 1/2"	1-1" P.			Gran. Cork	10"	1-1" P.
SIDES			"	10 1/2"	1-1" P.			"	10 1/2"	1-1" P.
OVERHEADING			Slab Cork	8"	1-2" P.			Slab Cork	2"	1-1" P.
FLOORS OF CHAMBERS										
TRUNK HATCHWAYS						✓				
THRUST RECESS, SIDES AND TOP								Gran. Cork	10"	1-1" P.
TUNNEL SIDES AND TOP								"	9"	2" P.
TUNNEL RECESS, FRONT AND TOP										No. 5 hold not insulated.

FRAMES OR REVERSE FRAMES, FACE

BULKHEAD STIFFENERS, TOP

RIBBAND ON TOP OF DECKS

SIDE STRINGERS, TOP

WEB FRAMES, SIDES

BRACKETS, TOP

INSULATED HATCHES, MAIN

HATCHWAY COAMINGS, MAIN

HOLD PILLARS

MASTS

Are insulated plugs fitted to provide easy access to bilge suction roses

and manhole doors of tanks

Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected

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

fixed or portable

Thermometer Tubes, No. and position in each chamber

diameter

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

Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers

*Covered by insulation 1 1/2" x 4"*  
*do. 1" BOTTOM do. AND FACE do.*

*2" gran. cork x 1" P. AND FACE 2" gran. cork x 1" P.*  
*1/2" " do. AND FACE do.*

*6" gran. cork - 2 @ 1" P. Bilge 4 1/2" gran. cork 2 @ 1" P. MANHOLE as bilge*

*Solid pine. galvanized sheet iron Solid pine*

*1" Slab cork - 1 @ 1 1/2" P.*

*6" Silicate of cotton - 1 1/4" P.*  
*Yes tank, air, and sounding pipes Yes heels of pillars*

*Yes Are insulated plugs fitted to ventilators cargo ports and side lights*

*Yes if so, how cargo battens*

*Insulated space separated from oil storage tanks by Cofferdam.*

*Is the insulation and woodwork fireproof in way of bunkers or any surfaces exposed to excessive heat*

*Yes*  
*3x3 @ 12" tunnel top 3x3 @ 12"*

*2x2 @ 12" floors*

*Are screens fitted over the brine grids at chamber sides*  
*hinged or permanently fixed*  
*No. 1 held one each end - No. 2 held two at the centre & one end - No. 3 held two at the centre & one end - No. 4 held two at the centre & one end - No. 5 held two at the centre & one end*

*2 1/2" bore.*  
*Are they fitted in accordance with Section 3, Clause 8.*

*Scuppers*  
*Yes*

*Scuppers.*

*Scuppers fan room Scuppers water circulating pump room in Eng. room*

*Scuppers*  
*Air space at fore peak bulk. Yes*



Sounding Pipes, No. and position in each chamber situated below the load water line *two each hold*  
Diameter *2 1/2"* 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 *✓*  
How is the expanded metal secured in place *✓*  
How are the cork slabs secured to the steel structure of the vessel *to tank top - duraproof mixture to deck - messproof mixture.*  
Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans *Yes*  
Are they permanently fixed or collapsible, or portable *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 *2"* Minimum thickness *3/16"* Are they galvanised externally *Yes*  
How are they arranged in the chambers *on roof - also sides in No 1 hold.*

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers *Brine heater*

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 *Yes plan*  
(If not, state date of approval)  
Is the Refrigerating Machinery and Appliances duplicate of a previous case *no* 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

*Kindly return approved plan to this office for use in dealing with Sister vessel.*

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

*To complete the survey the cooling and insulation tests require to be held. The Owners representative stated that this would be done at the first opportunity.*

*The Refrigerating appliances have been fitted under special survey and the materials and workmanship are good. The installation will be eligible in our opinion for Classification and Record of LLOYD'S R.M.C. with date upon satisfactory completion of the survey.*

*Job  
28/7/41*

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours.  Tons.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.				No.	Capacity. Cubic ft.
2	4	Carl. Anky J. & E. Hall Ltd.	1941	(1) Brine & Air (2) Fran Carb.	111	Yes	16	268060	

*London 9/49*  
Fee *G.L.S. H/c £18* £27: 0: 0 { Fee applied for, 19  
Travelling Expenses £ : : { Received by me, 19

Committee's Minute

*GLASGOW 29 JUL 1941*

Assigned

*deferred*

*U. Davis.*

*R. W. Paterson*  
Surveyors to Lloyd's Register.



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