

Rpt. 17.

DEUCALION

No.

## REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

Date of writing Report

-8 JUN 1928

When handed in at Local Office

-8 JUN 1928

Port of London

No. in

Reg. Book.

22831

Survey held at London

Date: First Survey

18<sup>th</sup> Jan 1928

Last Survey

17 May 1928

1928

(No. of Visits)

11

on the Refrigerating Machinery and Appliances of the *S.S. "GLENOGLE"*

Tons

Gross 9513

Net 5880

Vessel built at Glasgow

By whom built Harland &amp; Wolff Ltd. Yard No.

When built 1920-8<sup>mo</sup>

Owners Glen Line Ltd.

Port belonging to London

Voyage

Refrigerating Machinery made by J. &amp; E. Hall Ltd.

Machine No. 4311

When made 1928

Insulation fitted by Harland &amp; Wolff Ltd. When fitted 1928

System of Refrigeration Brine

Method of cooling Cargo Chambers Brine grids

Insulating Material used Granulated Cork

Number of Cargo Chambers insulated 6

Total refrigerated cargo capacity 45,000 cubic feet.

## DESCRIPTION OF REFRIGERATING MACHINERY.

Where placed lower deck level fore of E.R.

Refrigerating Units, No. of Two Single, double, or triple single

Cubic feet of air delivered per hour

Total refrigeration or ice-melting capacity in tons per 24 hours 30

Are all the units connected to all the refrigerated chambers

Compressors, driven ~~direct~~ through <sup>single</sup> ~~double~~ reduction gearing. Compressors, single or double acting double acting No. of cylinders 2 per machDiameter of cylinders 2 $\frac{1}{2}$ " Diameter of piston rod 1 $\frac{1}{4}$ " Length of stroke 4" No. of strokes per minute 300 each

Motive Power supplied from Electric motors thro' spur gearing.

~~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 3 $\frac{3}{4}$ "Breadth and thickness of crank webs 5" x 2 $\frac{1}{8}$ " No. of sections in crank shaft oneRevolutions of <sup>CO<sub>2</sub> machine</sup> engine per minute 150

Oil Engines, type

2 or 4 stroke cycle

Single or double acting

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 enclosed ventilated No. of one per mach. Rated 32 H.P.

Kilowatts

Volts at 220 at 450 revolutions per minute. Diameter of motor shafts at bearings 3"

Reduction Gearing, maximum shaft horse power at 1st pinion 32

Revolutions per minute at full power at 1st pinion 450

2nd pinion 1st reduction wheel main shaft 150

Pitch circle diameter, 1st pinion 8.8" 2nd pinion

1st reduction wheel Main wheel 44.4 Width of face, <sup>pinion</sup> 1st reduction wheel 6 $\frac{1}{4}$ "

Main wheel 6"

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, 1st pinion 5 $\frac{5}{8}$ "

2nd pinion

1st reduction wheel Main wheel 7"

Flexible pinion shafts, diameter 1st

2nd

Pinion shafts, diameter at bearings, External, 1st 3"

2nd

Internal, 1st

2nd

Diameter at bottom of teeth of pinion, 1st 4.88

2nd

Wheel shafts, diameter at bearings, 1st

Main 3 $\frac{3}{4}$ "

Diameter at wheel shroud, 1st 9.6"

Main not shrouded.

Gas Condensers, No. of 2

Cast iron or steel casings cast iron

Cylindrical or rectangular cylindrical.

No. of coils in each 3

Material of coils S.D. copper  $\frac{3}{4}$ " x 1 $\frac{1}{2}$ " d. Can each coil be readily shut off or disconnected yes.Water Circulating Pumps, No. and size of 1 - 2 $\frac{1}{2}$ " centrifugal

how worked electrically

Gas Separators, No. of 4

Gas Evaporators, No. of 2

Cast iron or steel casings steel D shaped

Pressure or gravity type gravity.

No. of coils in each casing 3

Material of coils S.D. steel 1 $\frac{1}{2}$ " x 1 $\frac{5}{8}$ " 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 2 - 2" centrifugal

how worked electrically.

Brine Cooling System, closed or open open

Are the pipes and tanks galvanised on the inside

No. of brine sections in each chamber 2 to A chamber, 2 to D chamber.

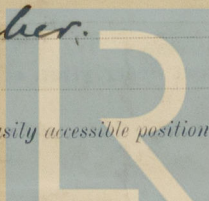
4 each in B, C, E, F chambers

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. 9.16.—T.



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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

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)						
GAS COMPRESSORS	18-1-28	1000lb □	3000lb □	1500lb □	04	
" SEPARATORS	18-1-28	do.	do.	do.	04	
" CONDENSER COILS	2-2-28	do.	do.	do.	04	
" EVAPORATOR COILS	2-2-28	do.	do.	do.	04	
" CONDENSER HEADERS AND CONNECTIONS	18-1-28	do.	do.	do.	04	
" CONDENSER CASINGS	26-3-28		30lb □		04	
" EVAPORATOR CASINGS		open top.				
NH <sub>3</sub> 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 15<sup>th</sup> & 16 May 28. Density of Brine 48 by Tu. 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 -6 & -2. atmosphere 51 cooling water inlet and discharge 58 & 64 gas in condensers 78 and evaporators -6 the average temperature of the refrigerated chambers. 8°F and the rise of temperature in these chambers upon the expiration of 60/2 hours time after the machinery and cooling appliances have been shut off 7 & 11

### SPARE GEAR.

#### ARTICLES SUPPLIED AS PER RULE.

#### ADDITIONAL SPARE GEAR SUPPLIED.

4 compressor pistons + rods complete with rings.  
4 suction valves seats + springs for compressor.  
12 additional valve springs.  
1 spare crankshaft.  
1 pair bolts + nuts for main bearings.  
1 do do for crank pin bearings.  
1 spare brine pump in engine room.  
1 impeller + spindle for water pump.  
1 do do for brine pump.  
1 CO<sub>2</sub> regulator spindle.  
1 set of 2 leather moulds.  
12 piston leathers for lubricator.  
12 gland do.  
3 lengths W.I. pipe 1 1/4" & 1 1/2" bore.  
3 r. l. bends each 1 1/4" & 1 1/2" bore.  
12 sockets + 12 backnuts each 1 1/4" & 1 1/2"  
1 set hatchet dies to screw 1 1/4" & 1 1/2"  
2 sets copper joints rings for compressor joints  
1 set do do for other joints.  
2 pair CO<sub>2</sub> pipe flanges.  
Assorted bolts + nuts  
Sundry brine cocks + valves  
2 sets of metallic packing rings for each comp. gland.

1 guide for grinding in comp. valves.  
2 springs for CO<sub>2</sub> safety valves.  
1 hand pump for pressure lubricator.  
1 CO<sub>2</sub> pressure gauge.  
1 hydrometer.  
2 brass cased thermometers.  
1-5/8" CO<sub>2</sub> valve + 3 spare pipe.  
12 copper safety discs.  
1 fitted box.  
1 rawhide pinion in case.

	Machine Motor	Brine Pump Motor	Circ. water Pump Motor
Armature	1	1	1
Set of brushes.	2	2	1
Set of brush springs	1	1	1
Set of bearings	1	1	1
Controller spares for machine motor Brine pump + water pump motors			

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

FOR J. & E. HALL, LTD

Chichesters

Manufacturer.

Frame numbers run from 0 at midships for 1 & aft.

### DESCRIPTION OF INSULATION.

TWEEN DECK IN LOWER HOLD CHAMBERS.						UPPER IN TWEEN DECK CHAMBERS.				
FRAME No.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.	Inner Lining.	FRAME No.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.
FRAME No. 37F A (Lower Deck)	None	1 1/4 HCWP	gum bark	9"	-	37F A	1 1/4 HCWP	gum bark	9"	-
FRAME No. 9F	do	1 1/4 HCWP	-	-	-	-	1 1/4 HCWP	-	9"	-
A	do	2 1/4 HCWP	gum bark	10	-	-	1 1/4 HCWP	gum bark	8"	1 1/4 HCWP
FRAME No. 5A	F					-	1 1/4 HCWP	do	10	-
A										
FRAME No.	F									
A										
FRAME No. (Boiler Room)	F									
A										
FRAME No. (Engine Room)	A									
F										
A										
FRAME No.	F									
A										
FRAME No.	F									
A										
FRAME No.	F									
A										
FRAME No. (After Peak)	F									
SIDES		1 1/4 HCWP	gum bark	10"	-	-	1 1/4 HCWP	gum bark	10"	-
OVERHEADING		1 1/4 HCWP	do	10"	-	-	1 1/4 HCWP	do	10"	-
FLOORS OF CHAMBERS		Under/over deck	do	11"	-					
TRUNK HATCHWAYS										
THRUST RECESS, SIDES AND TOP										
TUNNEL SIDES AND TOP										
TUNNEL RECESS, FRONT AND TOP										

FRAMES OR REVERSE FRAMES, FACE			1" Slab cork
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 3" x 3" spaced 12" tunnel top fixed or portable Portable Are screens fitted over the brine grids at chamber sides 4" hinged or permanently fixed Portable

Thermometer Tubes, No. and position in each chamber 2-A. 4-B. 4-C. 2-D. 4-E. 4-F diameter 2 1/2 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

Trapped Scupper 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 Open to main engine room

brine return room Trapped Scupper 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

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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 ☒ Half check 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 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 ☒ 1 1/2" 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 Hat Brine

The foregoing is a correct description of the Insulation and Appliances.

FOR HARLAND & WOLFE LTD.

Robert Cairns Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery ☒ No and Insulation 23.10.27

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

Glenbeg  
Complete

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

The refrigerating machines have been constructed under special survey and the materials and workmanship are good, is now installed aboard the vessel, for particulars see previous page. The insulation is fitted in accordance with the approved plans, workmanship & materials are good. This vessel is in my opinion eligible to have record of survey + LLOYD'S RMC 5.28.

It is submitted that  
this vessel is eligible for  
THE RECORD. + Lloyd's RMC 5.28.

MJ JWD

8/6/28. CERTIFICATE WRITTEN.  
96.18

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					POWER.		INSULATED CARGO CHAMBERS.	
No. and whether Single or Duplex.	Makers.	Date of Construction.	System.	Type.	System of (1) Refrigerating (2) Insulating the Chambers.	Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No. Capacity.
2 Single	G.E. Hall Ltd.	1928	Carb. Amby	Hall	(1) Brine (2) Gran. Cork		30	6 45,000

Fee £ 9 : 0 : 0 { Fee applied for, 28 JUN 1928  
Travelling Expenses £ : 10 : 3 { Received by me, 4.7.1928

Charles H. Hunt D. Gennell.  
Surveyor to Lloyd's Register.

Committee's Minute

FRL 15 JUN 1928

Assigned see Minute on  
Lon RMC Rpt  
30591



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