

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

3 OCT 1941

Date of writing Report **25TH SEPT. 1941** When handed in at Local Office **30.9.41** Port of **GLASGOW.**
No. in Reg. Book. Survey held at **GLASGOW.** Date: First Survey **28.4.41** Last Survey **11.9.41**
(No. of Visits **6**)

on the Refrigerating Machinery and Appliances of the **M.V. "EMPIRE PRIDE"** Tons **9248** Gross **5157** Net
Vessel built at **GLASGOW.** By whom built **BARCLAY CURLE.** Yard No. **680.** When built **1941.**
Owners _____ Port belonging to _____ Voyage _____
Refrigerating Machinery made by **J. & E. HALL.** Machine Nos. **10733, 10734.** When made **1941.**
Insulation fitted by **J.D. INSULATING CO L^{TD}.** When fitted **AUG. 1941.** System of Refrigeration **CO₂ & BRINE.**
Method of cooling Cargo Chambers **BRINE GRIDS.** Insulating Material used **SLAB & GRAN. CORK.**
Number of Cargo Chambers insulated **10** Total refrigerated cargo capacity **10,690** cubic feet.

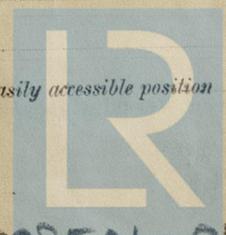
DESCRIPTION OF REFRIGERATING MACHINERY. Where placed

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 ^{single} _{double} **reduction gearing.** **Compressors, single or double acting** _____ **If multiple effect compression** _____
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** _____ **Grade 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** _____

SEE LONDON REPORT NO. R.M.C. 1261

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

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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 **YES**
 Is the exhaust steam led to the main and auxiliary condensers

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 ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE						
BRINE PIPING AFTER ERECTION IN PLACE	7-8-41	15/20 lbs/sq	90 lbs/sq			

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 **YES**.
 Dates of test **27-8-41.** Density of Brine **45** by **TWADDLE** 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
 atmosphere **58°F.** cooling water inlet and discharge **62°F. & 68°F.** gas in condensers **78°F.** and evaporators **-18°F.**
 the average temperature of the refrigerated chambers **10.5°F.** and the rise of temperature in these chambers upon the expiration of **14** hours
 time after the machinery and cooling appliances have been shut off **10° Rise. (20.5°F. TEMP.)**

SPARE GEAR.

Are the working parts of the machines, pumps and motors respectively, interchangeable
 Has the spare gear required by the Rules been supplied **YES, AS PER LIST IN LONDON REPORT.**
Additional Spare Gear Supplied:

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. 40 (Fore-Peak)	F.					✓	1/2" Cement	Slab Cork	10 1/2"	✓
FRAME No. 60 (Starb.)	F.					✓	- do -	- do -	- do -	✓
FRAME No. 68 (Port)	F.					✓	- do -	- do -	10" x 12"	✓
FRAME No.	F.									
FRAME No. (Boiler Room)	F.									
FRAME No. (Engine Room)	F.									
FRAME No.	F.									
FRAME No.	F.									
FRAME No.	F.									
FRAME No. (After Peak)	F.					✓	1/2" Cement	Slab Cork	13" port 14" starb	✓
SIDES						✓	- do -	- do -	11 1/2" port 12 1/2" starb	✓
OVERHEADING						✓	1/2" Asphalt	- do -	9" port 10 1/2" starb	✓
FLOORS OF CHAMBERS						✓	1/2" T & G.	- do -	9" x 10 1/2"	1/2" Cement.
TRUNK HATCHWAYS						✓				
THRUST RECESS, SIDES AND TOP						✓				
TUNNEL SIDES AND TOP						✓				
TUNNEL RECESS, FRONT AND TOP						✓				

FRAMES OR REVERSE FRAMES, FACE **Covered as approved**
 BULKHEAD STIFFENERS, TOP **- do -** BOTTOM **- do -** AND FACE **✓**
 RIBBAND ON TOP OF DECKES **✓**
 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 (Tween Deck) **Slab Cork with Galvanized Iron Sheeting**
 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 **✓**
 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 **Yes.**
 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 **4 1/2 x 7/8 4" apart** floors **3 x 3/4 1" apart** tunnel top **✓**
 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 **1 1/2 each chamber at side near doorway.**
 diameter **2 1/2"** are they fitted in accordance with Section 3, Clause 8 **Yes**
Protection of Pipes. Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated **Yes.**
Draining Arrangements. What provision is made for draining the inside of the chambers **Scuppers (Bell type)**
 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 **2 1/2" suction.**
 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 *Yes.* Are cement facings reinforced with expanded steel lattice *Yes*

How is the expanded metal secured in place *fixed to Grounds*

How are the cork slabs secured to the steel structure of the vessel *fixed to Grounds & bedded in "Bitulase"*

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans ✓

Are they permanently fixed or collapsible, or 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 ✓ Are they galvanised externally *Yes*

How are they arranged in the chambers *In meat Rooms, Fish + Ice Rooms Sides + overhead*

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

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

(Signed) *J.D. Insulation Co. Ltd. R.R.*

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 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 *Complete.*

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

The materials and workmanship are good. The refrigerating machinery and appliances have been fitted under special survey, tried under working conditions and found satisfactory. The installation is, in our opinion, eligible for classification and the record of Lloyd's R.M.C. 9, 41.

Job 30/7/41

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.									
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.	System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
								No.	Capacity. Cubic ft.
<i>2.</i>	<i>2.</i>	<i>Carb. Ammonia</i>	<i>J. & E. Hall.</i>	<i>1941.</i>	<i>1) BRINE. 2) SLAB & GRAN. CORK</i>	<i>15</i>	<i>YES.</i>	<i>10</i>	<i>10,690</i>

LON. AC 32. Fee GLAS. AC 34. 6:0:0 { Fee applied for, *13-9-1941.* (Received by me, *19*)

Geo. H. Navin & J.R. McIlwain Surveyors to Lloyd's Register.

Committee's Minute **GLASGOW** **1 OCT 1941**

Assigned *-1- Lloyd's RMC 9.41*

CERTIFICATE WRITTEN



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