

# REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office

8-MAR 1949

Date of writing Report 25<sup>th</sup> Feb 1949 When handed in at Local Office 7/3/49 Port of Belfast  
 No. in Reg. Book. 95000 Survey held at Belfast Date: First Survey 10<sup>th</sup> Feb 1948 Last Survey 4<sup>th</sup> Feb 1949  
 (in Suppl<sup>y</sup>) RETAIN (No. of Visits) 36

on the Refrigerating Machinery and Appliances of the T.W. SC. "MAGDALENA" Tons { Gross 17,547  
 Net 9,886  
 Vessel built at Belfast By whom built Harland & Wolff Ltd Yard No. 1354 When built Feb. 1949  
 Owners Royal Mail Lines Ltd; Port belonging to London Voyage   
 Refrigerating Machinery made by J. & E. Hall Ltd; Machine Nos. 13288, 13289, 13290. When made 1948  
 Insulation fitted by Mersey Insulation Co. When fitted during construction System of Refrigeration carb. Anhy  
 Method of cooling Cargo Chambers Brine & Air Insulating Material used Fibreglass & slab cork  
 Number of Cargo Chambers insulated 41 Total refrigerated cargo capacity 451240 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> <sub>double</sub> } **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** \_\_\_\_\_ **Range of tensile strength** \_\_\_\_\_ **Working pressure by Rules** \_\_\_\_\_  
**Electric Motors, type** \_\_\_\_\_ **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** \_\_\_\_\_

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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 <sub>3</sub> CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE	November 1948	30		90		
BRINE PIPING AFTER ERECTION IN PLACE	15 Jan 1949					

*See London Report No 2215*

Have important steel castings and forgings been tested in accordance with the Rules *yes*  
**Cooling Test.** Has the refrigerating machinery been examined under full working conditions, and found satisfactory *yes*  
 Dates of test *3:2:49 & 4:2:49.* Density of Brine *47°* by *Swaddell* 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  
*average 3.55°* & *6.87°*, outflow and return brine *-2°* & *2°*  
 atmosphere *46°* cooling water inlet and discharge *52°* & *57°* gas in condensers *70°* and evaporators *-7°*  
 the average temperature of the refrigerated chambers *7.875°* and the rise of temperature in these chambers upon the expiration of *12* hours  
 time after the machinery and cooling appliances have been shut off *5.142°*

SPARE GEAR.

Are the working parts of the machines, pumps and motors respectively, interchangeable *yes.*  
 Has the spare gear required by the Rules been supplied

Additional Spare Gear Supplied:

*See London Report No 2215*

The foregoing is a correct description of the Refrigerating Machinery.



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**Sounding Pipes, No. and position in each chamber situated below the load water line** *N<sup>o</sup> 1, 2, & 3 forward Holds one p.s. at after end. N<sup>o</sup> 4 aft Hold one p.s. at forward & after ends. N<sup>o</sup> 5 after Hold, one p.s. at forward end. All fitted above & below insulation.*

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 on tank tops* Are cement facings reinforced with expanded steel lattice. *✓*  
*elbowed patent G.M.S. as approved.*

How is the expanded metal secured in place *✓*

How are the cork slabs secured to the steel structure of the vessel *bedded in bitumen*

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

Are they permanently fixed or collapsible, or portable *permanently fixed*

Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors *none* 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"* Minimum thickness *7 w.g.* Are they galvanised externally *yes.*

How are they arranged in the chambers *in batteries as coolers and brine grids.*

**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.

THE MERSEY INSULATION CO. LTD. *J. J. Shill* Builders.

**Plans.** Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery *yes* and Insulation *yes*  
(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 *completed.*

**General Remarks** (State quality of workmanship, opinions as to class, &c.) *The insulation has been fitted under special survey. The materials and workmanship is good. The machinery has been efficiently installed and tested under full working conditions with satisfactory results. Electric fan motors have been fitted & inspected during construction, Report form 7 (b) issued by the London Surveyors is attached herewith together with the relevant works test certificates.*

*The installation is eligible in our opinion to have the notation R.M.C. 2,49.*

*It is submitted that this vessel is eligible for THE RECORD.*

*+ Lloyd's Reg. 2.49 TRun 17.3.49*

**PARTICULARS TO BE ENTERED IN REGISTER BOOK.**

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.				No.	Capacity. Cubic ft.
<i>3</i>	<i>6</i>	<i>carb anhy.</i>	<i>J &amp; E. Hall</i>	<i>1948.</i>	<i>(1) Brine &amp; air (2) Fibreglass.</i>	<i>180.</i>	<i>yes ✓</i>	<i>41</i>	<i>4512.40.</i>

*LONDON No 50-1-1*  
 Fee *Belfast No. 140/17* £ 150 : 0 : 0 { Fee applied for, 7/3 | 1949.  
 Travelling Expenses £ : : { Received by me, 19

*A.S. Fletcher, G. Russell & R.I. Murchison.*  
 Surveyors to Lloyd's Register.

Committee's Minute *18 MAR 1949*

Assigned *+ Lloyd's Reg 2.49*



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

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