

Report on Refrigerating Machinery and Appliances.

Received at London Office

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Date of writing Report 25. 6. 1948 When handed in at Local Office 25. 6. 1948 Port of Glasgow

No. in Reg. Book. Survey held at GLASGOW Date: First Survey 15. 12. 47 Last Survey 15. 6. 1948 (Number of Visits 8)

on the Refrigerating Machinery and Appliances of the M.V. "DARA" Tons Gross 5030 Net 2766

Vessel built at WHITEINCH, GLASGOW By whom built BARCLAY CURLE & CO. LTD. Yard No. 711 When built 1948

Owners BRITISH INDIA STEAM NAVIGATION CO. LTD. Port belonging to LONDON Voyage

Refrigerating Machinery made by J.C.E. HALL LTD. Machine Nos. 13064/5 When made 1948

Insulation fitted by J. D. INSULATION CO. When fitted 1948 System of Refrigeration CARA-ARMY.

Method of cooling Cargo Chambers BRINE & AIR Insulating Material used SLAB CORK

Number of Cargo Chambers insulated FIVE Total refrigerated cargo capacity 6050 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 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:—Have they been made under survey. State No. of Report or Certificate

Is each receiver, which can be isolated, fitted with a safety valve as per Rule

Can the internal surfaces of the receivers be examined and cleaned. Is a drain fitted at the lowest part of each receiver

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.

100.11.42. (MADE AND PRINTED IN ENGLAND.)

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... Yes
 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... Yes

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...						

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... 14/15-6-48 Density of Brine 47° by TW 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 -8°F & -4°F
 atmosphere 63°F cooling water inlet and discharge 61.5°F & 66°F gas in condensers 79°F and evaporators -15°F
 the average temperature of the refrigerated chambers 6.5°F 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... 12.2°F

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... Yes
 Additional Spare Gear Supplied:—

The foregoing is a correct description of the Refrigerating Machinery.

DESCRIPTION OF INSULATION.

IN LOWER HOLD CHAMBERS.						REFRIGERATED CARGOES IN 'TWEEN DECK CHAMBERS. MAIN TO UPPER DECK - FRAMES 34 TO 48.				
	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					BULKHEAD N° 34	SLAB CORK	10"		FACED WITH EXPANDED METAL 1/2" CEMENT.
Frame No.	F					" N° 38 & 41	Do.	10"		Do.
Frame No.	A					" N° 47 (STAR)	Do.	10"		Do.
Frame No.	F	UPPER DK.				" N° 48 (PORT)	Do.	10"		Do.
Frame No.	A	N° 4 TW. DK				F & A BULKHEADS	Do.	10"		Do.
Frame No.	F	MAIN DK				SHIPS SIDE	Do.	10"		Do.
Frame No.	A	34	38			OVERHEADING	Do.	10"		Do.
Frame No. (Boiler Room)	F					FLOOR OF CHAMBERS	Do	3' 8 1/2" ASPHALT		
Frame No. (Engine Room)	A					UNDER DECK	FIBRE GLASS	10"		FACED WITH 12 G. STEEL (GALV)
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 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 2" x 2" SPACED 12" floors 2" WOOD GRATINGS tunnel top fixed or portable FIXED Are screens fitted over the brine grids at chamber sides hinged or permanently fixed

Thermometer Tubes, No. and position in each chamber 2 IN EACH CHAMBER 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 SCUPPER Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off YES What provision is made for draining the refrigerating machinery room SCUPPER 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

How are the cork slabs secured to the steel structure of the vessel **BEDDED IN BITUMASTIC SOLUTION.**

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 **1 1/2"** Minimum thickness **7/16"** Are they galvanised externally **YES**

How are they arranged in the chambers **ROOF & LIDE GRIDS**

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers **HOT BRINE CIRCULATION.**

The foregoing is a correct description of the Insulation and Appliances. FOR BARCLAY CURLE & COY LTD

James Wilson Builders.
TECHNICAL MANAGER

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery **YES** and Insulation **YES**
(If not, state date of approval) **PRACTICALLY SIMILAR TO "DUMRA"**

Is the Refrigerating Machinery and Appliances duplicate of a previous case **YES** If so, state name of vessel **EXCEPT TWO ADDITIONAL SPACES ARE INSULATED.**

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 Refrigerating machinery & Appliances have been constructed under special survey in accordance with the Rules & the approved plans & the materials & workmanship are good.

The complete installation has been examined under working conditions & cooling down tests have been satisfactorily carried out & the Refrigerating Machinery & Appliances are in my opinion eligible for record **LLLOYDS R.M.C. 6-48.**

+ Lloyd's Rule 6-48
Rule 14.7-48

Certificates for fan motors to be forwarded

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.						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.	(1) Refrigerating (2) Insulating the Chambers.			No.	Capacity.
2	24	CARB. AMNH.	J.E. HALL LD. DARTFORD.	1948	BRINE & AIR SLAB CORK.	Tons. 5 1/4	STEAM.	5	6050

Fee £ 24.00 (Fee applied for 29.6.48)
 Travelling Expenses £ 8.00 (Received by me 19.7.48)

A.H. Linnell & Arthur J.P. Crawford
Surveyors to Lloyd's Register.

Committee's Minute **GLASGOW 6 JUL 1948**

Assigned **Lloyd's Rule 6.48**



Certificate to be sent to ML2