

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

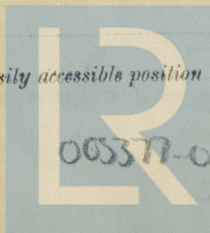
Date of writing Report 16th Sept 1944. When handed in at Local Office 18 SEP 1944 Port of NEWCASTLE-ON-TYNE
 No. in Reg. Book. Survey held at Newcastle Date: First Survey Last Survey 19
 (No. of Visits)
 on the Refrigerating Machinery and Appliances of the EMPIRE LADY Tons { Gross 704.04
 Net 476.64
 Vessel built at Newcastle By whom built Shipbuilding Co. Ltd Yard No. 8 When built 8.44
 Owners Ministry of War Transport Port belonging to Newcastle Voyage Canada
 Refrigerating Machinery made by L. Starn & Co. Ltd Machine Nos. 2546 When made 1944
 Insulation fitted by Not yet fitted When fitted Not yet fitted System of Refrigeration N.H.3 vapor
 Method of cooling Cargo Chambers Air cooled Insulating Material used ✓
 Number of Cargo Chambers insulated 3 Total refrigerated cargo capacity 284000 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY.

Where placed

Tween deck space
abaft main Eng. Room

Refrigerating Units, No. of 2 No. of machines 2 Is each machine independent Yes
 Total refrigeration or ice-melting capacity in tons per 24 hours By VEE BELTS BY STEAM ENGS. Are all the units connected to all the refrigerated chambers
 Compressors, driven by VEE BELTS BY STEAM ENGS. Compressors, single or double acting Single If multiple effect compression No
 Are relief valves or safety discs fitted Yes No. of cylinders to each unit 4 Diameter of cylinders 7 1/4"
 Diameter of piston rod Trunk pistons Length of stroke 6 No. of revolutions per minute 410
 Motive Power supplied from 3 Boilers (State number of boilers, oil engines or electric generators supplying the motive power.)
 Steam Engines, high pressure, compound, or simple expansion, surface condensing. No. of cylinders Two Diameter 7" & 11"
 Length of stroke 5" Working pressure 180 lb Diameter of crank shaft journals and pins Belliss & Morcom
 Breadth and thickness of crank webs See Birmingham City C 3138 of 7th Mar 44 Revolutions of engine per minute 410130
 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 — Revolutions of engine per minute —
 Breadth and thickness of crank webs — No. of sections in crank shaft —
 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 1 Girth 100 Taper 11.5 inch
1 Baller 200 Taper 11.5 inch
1 B.S. Pump 60 T/m 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 6 each of 14500 cubic feet capacity, at — revolutions per minute —
 Steam or electrically driven electric 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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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. (Fore Peak)	A									
FRAME NO.	F									
FRAME NO.	A									
FRAME NO.	F									
FRAME NO.	A									
FRAME NO.	F									
FRAME NO. (Boiler Room)	A									
FRAME NO. (Engine Room)	A									
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 floors tunnel top										
fixed or portable Are screens fitted over the brine grids at chamber sides hinged or permanently fixed										
Thermometer Tubes, No. and position in each chamber 6 in. No. 3 P. 35.										
diameter 2 1/2" internal 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. What provision is made for draining the inside of the chambers 4" Brass Lapped Pipes (provided but not fitted)										
Where scupper pipes, and drain pipes are fitted are means provided for blanking them off										
What provision is made for draining the refrigerating machinery room 4" Scupper (16") through by the side with a 1/2" pipe leading to the bilge										
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										

Are thermometers fitted to the outflow and to each return brine pipe

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

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

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						

See Glasgow Report No. 68411.

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

Dates of test 24th August 1914 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

atmosphere cooling water inlet and discharge outflow and return brine 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: In accordance with Glasgow Report 68411.

The foregoing is a correct description of the Refrigerating Machinery.

Manufacturer.

Sounding Pipes, No. and position in each chamber situated below the load water line *1 each to bilges & double bottom (P. 15).*

Diameter *2 1/2 inches* Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 11

Are all wood linings tongued and grooved

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

Added in Return

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

Minimum thickness

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

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

Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery

Is the Refrigerating Machinery and Appliances duplicate of a previous case

If so, state name of vessel

and Insulation

If the survey is not complete, state what arrangements have been made for its completion and what remains to be done

Insulation in holds & tween decks to be fitted on the arrival of the vessel in Canada. Cork, supplied by Cork Insulation & Rubbers Co., also air trunk for completion of installation now stored, in tween deck, on board vessel. On completion of installation cooling tests to be carried out.

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

How done: Refrigerating Machinery pans, ammonia leads to coils fitted. Cooler spaces. Refriger. Machinery room insulated, deck insulation in way of insulated compartments fitted and vessel prepared ready to receive hold & tween deck insulation, in accordance with the attached specifications.

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.
2	4	Ammonia	L. Stern & Co	1944.	(1) Air	Tons. 64	ho.	3	287,000

Fee *See letter E 21-8/44.* To be charged in Canada.
Travelling Expenses £ : : { Fee applied for, 19
Received by me, 19

A. A. Mohr. a watt

Surveyor to Lloyd's Register.

Committee's Minute

FRI. 9 FEB 1945

assigned

*see minute
on Mtl & Runc Rpt.*



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