

Rpt. 17.

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# Report on Refrigerating Machinery and Appliances.

Received at London Office

1-OCT-1945

Date of writing Report **17th Aug. 1945** When handed in at Local Office **13th Aug. 1945** Port of **MONTREAL, QUE.**

No. in Reg. Book. Survey held at **MONTREAL, QUE.** Date: First Survey **25th May** Last Survey **28th July** 19 **45**  
(Number of Visits **10**)

on the Refrigerating Machinery and Appliances of the **S. S. "CABEDELLO"** Tons { Gross **3142.34**  
Net **1818.16**

Vessel built at **MONTREAL, QUE.** By whom built **Canadian Vickers Ltd.** Yard No. **211** When built **1945**

Owners **LLOYD BRASILEIRO (Patrimonio Nacional)** Port belonging to **Rio de Janeiro** Voyage **-**

Refrigerating Machinery made by **York Machinery Corporation** Machine Nos. **4 T L A-425** When made **1945**  
installed by **Canadian Ice Machine Co.**

Insulation fitted by **Canadian Cork Co.** When fitted **1945** System of Refrigeration **C C 12 F2 (Freon 12)**

Method of cooling Cargo Chambers **Direct Expansion Coils** Insulating Material used **Granulated Cork**

Number of Cargo Chambers insulated **FOUR (4)** Total refrigerated cargo capacity **15,800** cubic feet

## DESCRIPTION OF REFRIGERATING MACHINERY. Where placed **In Bridge Space, Starboard side**

Refrigerating Units, No. of **TWO** No. of machines **TWO** Is each machine independent **Yes**

Total refrigeration or ice-melting capacity in tons per 24 hours **9.5 tons** Are all the units connected to all the refrigerated chambers **Yes**  
by **Electric Motor**

Compressors, driven ~~through~~ **Belt** ~~through~~ **xxxx** Compressors, single or double acting **Single** of multiple effect compression **-**

Are relief valves or safety discs fitted **Yes** No. of cylinders to each unit **3** Diameter of cylinders **4"**

Diameter of piston rod **None** Length of stroke **4"** No. of revolutions per minute **650**

Motive Power supplied from **3 - 15 K W Electric Generators, Steam Driven**  
(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 **Compound wound, drip proof** No. of **Two** Rated **15** Kilowatts **115** Volts

at **1750** revolutions per minute. Diameter of motor shafts at bearings **1 7/8"**

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 **Two** Cast iron or steel casings **Steel** Cylindrical or rectangular **Cylindrical** Are safety valves fitted

to casings **Yes** No. of ~~coils~~ **tubes** in each **76** Material of ~~coils~~ **tubes** **Cupro-Nickel** Can each coil be readily shut off or disconnected **-**

Water Circulating Pumps, No. and size of pumps available **2.15 galls/min.** how worked **Direct connected to 3/4 H P Electric Motors** Gas Separators, No. of **-**

Gas Evaporators, ~~xxxx~~ **Coils** Cast iron or steel casings **-** Pressure or gravity type **pressure** If pressure type, are safety

valves fitted **Yes** No. of coils in each ~~coil~~ **chamber** **5** Material of coils **Steel** 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 **-** how worked **-**

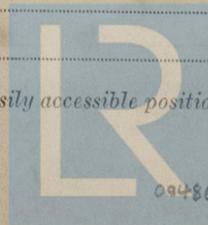
Brine Cooling System, closed or open **-** Are the pipes and tanks galvanised on the inside **-**

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.

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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. **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	18.7.45	125 lbs.	350 lbs.	-	Tested 350 lbs.	See General Remarks
Receivers and Storage Tanks	25.6.45	125 lbs.	400 lbs.	200 lbs.	18.7.45 Lloyd's 1118 ABC	Toronto Cert. No. 1118
Multiple Effect Receivers	-	-	-	-	25.6.45	-
Condensers	6.6.45	125 lbs.	400 lbs.	-	Lloyd's Test 400 lbs.	New York Cert. C-5791
Evaporator Coils	25.6.45	25 lbs.	350 lbs.	200 lbs.	Lloyd's Test JEK	Toronto Cert. No. 1118
Condenser Headers and Connections	-	-	-	-	-	-
Condenser Casings	-	-	-	-	-	-
Evaporator Casings	-	-	-	-	-	-
NH <sub>3</sub> Condenser, Evaporator and Air Cooler Coils after erection in place	-	-	-	-	-	-
Evaporator Coils after erection in place	18.7.45	25 lbs.	-	150 lbs.	-	-

Have important steel castings and forgings been tested in accordance with the Rules... **No (See General Remarks)**  
 Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory... **Yes**  
 Dates of test **27th & 28th July, 1945** 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... outflow and return brine... atmosphere **86° F.** cooling water inlet and discharge **72° F.** & **84° F.** gas in condensers... **94° F.** and evaporators... **6° F.** the average temperature of the refrigerated chambers... **9° 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... **15° 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: **As per attached list**

The foregoing is a correct description of the Refrigerating Machinery. For York Corporation per Canadian Ice Machine Co. Ltd. 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. (Fore Peak) A										
Frame No. 102 F										
Frame No. 88 F										
Frame No. 101 F										
Frame No. 84 F (Boiler Room)										
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. F (After Peak)										
Sides						None	None	Gran. Cork	12" ✓	3/4" T & G Fir. Double
Overheading						None	None	Gran. Cork L D 10" & Slag Wool with sheet metal	12" ✓	"
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										
Ribband on Top of Decks										
Side Stringers, Top										
Web Frames, Sides										
Brackets, Top										
Insulated Hatches, Main										
Hatchway Coamings, Main										
Tween Deck Pillars										
Masts										
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. <b>Air Pipes P.S. to Bridge Deck</b>										
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. <b>Yes</b> Where										
Cooling Pipes pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof. <b>Yes</b>										
Cargo Battens, Dimensions and spacing, sides. <b>2"x2"x12" spacing</b> floors. <b>Wood gratings</b> tunnel top.										
fixed or portable. <b>portable</b> Are screens fitted over the brine grids at chamber sides... hinged or permanently fixed...										
Thermometer Tubes, No. and position in each chamber. <b>1 to each chamber near centre, also 2 dial thermometers and 1 max-min. thermometer in each chamber</b>										
diameter. <b>2 1/2"</b> are they fitted in accordance with Section 3, Clause 8. <b>Yes</b>										
Protection of Pipes. Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated. <b>Yes</b>										
Draining Arrangements. What provision is made for draining the inside of the chambers. <b>2 1/2" scupper pipes, led to bilges from lower deck, led overboard from U. Deck, storm valves fitted</b>										
Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off. <b>Yes</b>										
What provision is made for draining the refrigerating machinery room. <b>Scuppers</b>										
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 -  
 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. 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 **1"** Minimum thickness **.133"** Are they galvanised externally **Yes**  
 How are they arranged in the chambers **Evaporator Coils arranged on sides, ends and overhead**

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers **Hot Gas Defrosting Line**

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

For **CANADIAN VICKERS LIMITED.**

*J. Kirkland*  
**(J. KIRKLAND) SHIPYARD MANAGER**

Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery **No** and Insulation **New York 19.1.45**  
 (If not, state date of approval)

Is the Refrigerating Machinery and Appliances duplicate of a previous case **No** 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.) **This REFRIGERATING MACHINERY and APPLIANCES have been installed on board this Vessel in conformity with the Society's Rules and Regulations, and the materials and workmanship are satisfactory.**

**The cooling tests have been carried out with satisfactory results and it is recommended that the Notation of LLOYD'S R M C 7,45 be made in the Register Book in the case of this Vessel.**

**Copies of Certificates for Condensers, Receivers, Storage Tank, Evaporator Coils and Makers Shop Tests of Electric Motors enclosed herewith. Plan of Arrangement enclosed.**

**The Compressors for this Vessel were not surveyed during construction. The Makers state that these Compressors were submitted to their usual test of 150 lbs./square inch at their Works.**

**On arrival here, they were opened up, examined and afterwards tested by 350 lbs. oil pressure in the presence of the undersigned, and found satisfactory. The remaining parts of the appliances were examined and tested, and all surveyed during installation, as required by the Rules, with satisfactory results, and it is submitted for the consideration of the Committee, that the distinguishing mark † may be noted in the REGISTER BOOK in the case of this Vessel -**

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.
<b>Two</b>	<b>Two</b>	<b>C C L2 F2</b> <b>(Freon 12)</b>	<b>York Ice</b> <b>Machinery Corp.</b>	<b>1945</b>	<b>(1) Direct</b> <b>Expansion</b> <b>(2) Gran. Cork</b>	<b>9.5</b>	<b>Yes</b>	<b>4</b>	<b>Cubic ft.</b> <b>15800</b>

Fee **£ 135<sup>00</sup>** Fee applied for, **10<sup>th</sup> Sept. 1945**

Travelling Expenses **£** **Included** Received by me, **19**

**in Hull Rpt.** **FRI. 12 OCT. 1945**

*J. Morrison*  
 Surveyor to Lloyd's Register.

Committee's Minute.....

Assigned..... **Lloyd's Rmc 7.45**



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