

## REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office

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No. in

Reg. Book. Survey held at London Date: First Survey 13<sup>th</sup> April 45 Last Survey 15<sup>th</sup> June 1945

(No. of Vents 5)

on the Refrigerating Machinery and Appliances of the "A Class vessels (Cargo)" Tons { Gross

Vessel built at By whom built Yard No. When built

Owners Commonwealth of Australia Port belonging to Voyage

Refrigerating Machinery made by J. E. Hall Ltd. Machine Nos. 11862, 11863 When made 1945

Insulation fitted by When fitted System of Refrigeration CO<sub>2</sub> + brine

Method of cooling Cargo Chambers Brine Insulating Material used

Number of Cargo Chambers insulated 6 Total refrigerated cargo capacity 35,000 cubic feet.

## DESCRIPTION OF REFRIGERATING MACHINERY. Where placed on tank top.

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 28 tons Are all the units connected to all the refrigerated chambers yes

Compressors, driven direct or through single } reduction gearing. 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 2 Diameter of cylinders 2 3/8"

Diameter of piston rod 1 1/8" Length of stroke 6" No. of revolutions per minute 450

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 1 per engine Diameter 8"

Length of stroke 5 1/2" Working pressure 110 lbs sq. in. Diameter of crank shaft journals and pins CO<sub>2</sub> compr 3 1/2" pins Steam engs 3 1/8" pins

Breadth and thickness of crank webs STEAM CRANK x 1 1/4" thick No. of sections in crank shafts one in each Revolutions of engines per minute 450

Oil Engines, type CO<sub>2</sub> CRANK x 1 3/4" thick 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 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 2 each with 3 casings Cast iron or steel casings copper Cylindrical or rectangular cylindrical Are safety valves fitted

in water headers No. of coils in each 1 per casing Material of coils Copper + "Yuccalho" Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of 1 - 2 1/2" centrifugal how worked electrically Gas Separators, No. of 4

Gas Evaporators, No. of casing with two sets coils = 1 set per machine Pressure or gravity type pressure If pressure type, are safety

valves fitted vent pipe fitted 1 set of 1 1/4" 7 in all Material of coils S.D. 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 2 - 2" centrifugal how worked electrically

Brine Cooling System, closed or open Closed Are the pipes and tanks galvanised on the inside No

No. of brine sections in each chamber Grids + cooling appliances in Chambers supplied

by Commonwealth of Australia and manufactured in Australia

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 *Common* *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  
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	12-6-45	1000 lb. □	3000 lb. □	1500 lb. □	R.M.	
SEPARATORS	24-4-45	do.	do.	do.	R.M.	
MULTIPLE EFFECT RECEIVERS	none.					
CONDENSER COILS	Stock tested	do.	do.	do.	R.M.	
EVAPORATOR COILS	13-4-45	do.	do.	do.	R.M.	
CONDENSER HEADERS AND CONNECTIONS	24-4-45	do.	do.	do.	R.M.	
CONDENSER CASINGS	20-4-45	do.	do.	do.	R.M.	
EVAPORATOR CASINGS	24-4-45	do.	do.	do.	R.M.	
NH <sub>3</sub> 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 *Yes.*  
**Cooling Test.** Has the refrigerating machinery been examined under full working conditions, and found satisfactory  
Dates of test *Density of Brine* by *hydrometer*  
**Temperatures** (when the cargo chambers are cooled down to the required test temperatures)  
or, delivery and return air at direct expansion or brine cooled batteries & outflow and return brine &  
atmosphere cooling water inlet and discharge & 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 *Yes*  
Has the spare gear required by the Rules been supplied *Yes.*

Additional Spare Gear Supplied:-

12 hubs piston leathers, 12 addl Comp. valve springs 1 set of Copper joint rings  
12 " gland do. 1 addl set Comp. joint rings 2 springs for water relief valves  
2 leather moulds 1 regulator valve spindle 2 " " CO<sub>2</sub> " "  
2 bolts + nuts for main bearings, 2 bolts + nuts for Comp. Coupling, 2 CO<sub>2</sub> gauges  
2 " " " crossheads, 1-1/2" CO<sub>2</sub> valve + 3 spare pipes, 1 hydrometer, 12 safety discs  
2 " " " Conn. rod big ends, 2 brass cased thermos, 1 set +atchet screwing dies.  
2 brine valves, 1 impeller and spindle for brine + water pumps, 1 fitted box for parts.  
1 set tools.  
*For Steam Engines* *For Pump Motors*  
1 set Steam piston rings 1 set of brush springs  
1 " governor springs  
1 " gland packing

The foregoing is a correct description of the Refrigerating Machinery.

*J. Wells* Manufacturer.  
*fr.*

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									
	A									
FRAME No.	F									
	A									
FRAME No.	F									
	A									
FRAME No. (Boiler Room)	F									
	A									
FRAME No. (Engine Room)	F									
	A									
FRAME No.	F									
	A									
FRAME No.	F									
	A									
FRAME No.	F									
	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  
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  
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  
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 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

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 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

General Remarks (State quality of workmanship, opinions as to class, &c.) The refrigerating machinery was constructed under special survey and the materials and workmanship are good and it will be eligible for the notation + Lloyd's R.M.C. (with date) when the installation and testing have been satisfactorily completed.

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.
2	4	Cooling	J. E. Hall	1945	(1) Brine	28		6	35,000

Fee (1/2) £ 2 : 0 : 0 { Fee applied for, 12/7/1945  
Travelling Expenses £ : : { Received by me, 19

D. Gemmell, R. M. M. Surveyor to Lloyd's Register.

Committee's Minute

FRI. 13 SEP 1946

Assigned

See Bob 4970



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