

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

28 JAN 1948

Date of survey Report 1-11-47 When handed in at Local Office

Port of NEWCASTLE, N.S.W.

No. in Reg. Book Sydney, N.S.W. & Survey held at Newcastle, N.S.W.

Date: First Survey 14/3/47 Last Survey 29-10-47

(No. of Vessels) 24

on the Refrigerating Machinery and Appliances of the S. S. "DELUNGRA" Tons 2333

1161

Vessel built at Newcastle, N.S.W. By whom built State Dockyard Yard No. 26 When built 1947

Owners Commonwealth of Australia. Port belonging to Newcastle, N.S.W. Voyage Interstate

Refrigerating Machinery made by York Air Conditioning Ltd. Machine No. When made 1947

Insulation fitted by State Dockyard When fitted 1947 System of Refrigeration Freon

Method of cooling Cargo Chambers Direct Expansion Insulating Material used Insulwool

Number of Cargo Chambers insulated One Total refrigerated cargo capacity 920 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed

Refrigerating Units, No. of Two Single, double, or triple Double Cubic feet of air delivered per hour --

Total refrigeration or ice-melting capacity in tons per 24 hours 4.2 Are all the units connected to all the refrigerated chambers 1 chamber

Compressors, driven direct or through ^{single} V belt drive. ^{double} reduction gearing. Compressors, single or double acting Single No. of cylinders Two

Diameter of cylinders 4" Diameter of piston rod -- Length of stroke 4" No. of strokes per minute 320

Motive Power supplied from Elec. motors

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 --

Electric Motors, type D.C. compound wound. No. of One for each unit. Rated 5 H.P. Kilowatts 220

Volts at 1440 revolutions per minute. Diameter of motor shafts at bearings 1 1/2"

Reduction Gearing, maximum shaft horse power at 1st pinion -- Revolutions per minute at full power at 1st pinion --

2nd pinion -- 1st reduction wheel -- main shaft -- Pitch circle diameter, 1st pinion -- 2nd pinion --

1st reduction wheel -- Main wheel -- Width of face, 1st reduction wheel -- Main wheel --

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, 1st pinion -- 2nd pinion --

1st reduction wheel -- Main wheel -- Flexible pinion shafts, diameter 1st -- 2nd --

Pinion shafts, diameter at bearings, External, 1st -- 2nd -- Internal, 1st -- 2nd --

Diameter at bottom of teeth of pinion, 1st -- 2nd -- Wheel shafts, diameter at bearings, 1st --

Main -- Diameter at wheel shroud, 1st -- Main --

Gas Condensers, No. of Two Cast iron or steel casings M.S. Cylindrical or rectangular Cylindrical

Tubes No. of 14 in each 14 Material of coils Aluminium Bronze Can each coil be readily shut off or disconnected Yes

Water Circulating Pumps, No. and size of -- how worked -- Gas Separators, No. of --

Gas Evaporators, No. of -- Cast iron or steel casings -- Pressure or gravity type --

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 Two Are there two separate systems, so that one may be in use while the other is being

cleared of snow Yes No. of coils in each battery Two Material of coils Copper Can each coil be readily shut off or

disconnected Yes Total cooling surface of battery coils 236 sq.ft. in each system. Is a watertight tray fitted under each battery floor covering.

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.

Steam-Condensing Plant. State what provision is made for condensing steam, in terms of Section 4, Clauses 13 and 14. 77

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)						
GAS COMPRESSORS	22/4/47	100/150 lbs	350 lbs.	200 lbs.	Lloyds No. 614 & 615 H.G.	
LIQUID RECEIVERS	14/3/47	"	"	"		
" SEPARATORS	17/3/47	"	"	"	Lloyds No. 603 & 604 H.G.	
" CONDENSER COILS	"	"	"	")	
" EVAPORATOR COILS)	Lloyd's No. 605 & 606 H.G.
" 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...	10/47			300 lbs.		Gas Test

Cooling Test. *Has the refrigerating machinery been examined under full working conditions, and found satisfactory*_____ **Yes**

Dates of test 28th. & 29th. Oct., 1947 Density of Brine -- by -- hydrometer

Temperatures (when the cargo chambers are cooled down to the required test temperatures) of air at the snow box and of the return air _____ & _____

or, delivery and return air at direct expansion or brine cooled batteries _____ & _____, outflow and return brine _____ & _____

atmosphere 69° cooling water inlet and discharge 67° & X gas in condensers 72° and evaporators -20°

the average temperature of the refrigerated chambers 10° 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 16°

SPARE GEAR.

Are the machines in accordance with Section 4, Clause 2 of the Rules ☒

Are the working parts of the machines, pumps and motors respectively, interchangeable Yes

[illegible]

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

Manufacturer.

DESCRIPTION OF INSULATION.

[illegible]

FRAMES OR REVERSE FRAMES, FACE

BULKHEAD STIFFENERS, TOP	BOTTOM	AND FACE
BRIDGE DECK SPACE.		
BOUNDARY ON TOP OF DECK.	BOUNDARY BULKHD. STIFFENERS - 2" INSULWOOL, DOUBLE 3/4" T & G. LINING.	
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

Coal Bunker Bulkheads, and Brine Outflow and Return Pipes *passing through coal bunkers. Is the insulation, so far as practicable, fireproof* —

Where **Cooling Pipes** pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof. —

Cargo Batts. *Dimensions and spacing, sides* -- *floors* Portable *tunnel top* --

fixed or portable -- Are screens fitted over the brine grids at chamber sides Yes hinged or permanently fixed Sliding

Thermometer Tubes, No. and position in each chamber. One in centre

diameter 3" 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. *Where the chambers are situated below the load water line, what provision is made for draining the inside of the chambers*

~~Screw down scupper to bilge.~~ 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.....

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 13

Are all wood linings tongued and grooved Yes

Are cement facings reinforced with expanded steel lathes

How is the expanded metal secured in place

How are the Insulwool slabs secured to the steel structure of the vessel By Bitumastic

Air Trunkways in Chambers, inside dimensions, main

and branch

Are they permanently fixed or collapsible, or portable

State position in chambers

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

Yes

Where are the doors worked from

From Bridge Space alleyway

Cooling Pipes in Chambers, diameter 7/8" O.D. (Direct Exp.)

Are they galvanised externally

Copper

How are they arranged in the chambers As per approved plan.

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.

Hutchell for

STATE DOCKYARD,
N.S.W. Govt. Engineering and
Shipbuilding Undertaking.

Builders.

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

Is the Refrigerating Machinery and Appliances duplicate of a previous case

Yes

If so, state name of vessel

"DORRIGO"

"DUBBO"

(See Secretary's letter E.19-9-45)

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

The Refrigerating Installation of this vessel with the exception of the compressor cranks shafts has been constructed under Special Survey, in accordance with the Rules and approved plans, and the materials and workmanship are good. The installation has been examined and tested under working conditions with satisfactory results and is now eligible in our opinion for record of Lloyd's R.M.C., 10, 47.

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

It is submitted that this
should be eligible for THE
RECORD.

Lloyd's Rule 1047.

Yru

10.2.48

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

No. of Units. Comps.		REFRIGERATING MACHINES.				POWER.		INSULATED CARGO CHAMBERS.	
No. and Description of Compressor	Makers.	Date of Construction.	System.	Type.	System of (1) Refrigerating (2) Insulating the Chambers.	Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.
2	4 York Air Cond. Id.	1947	Freon	--	Direct Exp. Insulwool.	--	4.2	1	920

Fee £ 20 : 0 : 0 { Fee applied for, 6/11/1947
Travelling Expenses £ : : { Received by me, 19.

Committee's Minute

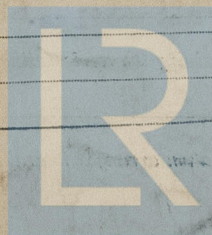
FRI. 13 FEB 1948

Assigned

Lloyd's RMC 10.47

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