

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

31 AUG 1946

(Received at London Office)

Date of writing Report 19-6-1946 When handed in at Local Office

Port of BRISBANE

No. in

Reg. Book. Survey held at BRISBANE Date: First Survey 11-7-45 Last Survey 13-6-1946

(No. of Visits 25)

on the Refrigerating Machinery and Appliances of the S.S. "RIVER NORMAN" Tons Gross 6659.17 Net 3908.81

Vessel built at BRISBANE By whom built EVANS DEAKIN & CO. LTD. Yard No. 19 When built 1946-6

Owners COMMONWEALTH OF AUSTRALIA (DEPT. OF SUPPLY & SHIPPING) Port belonging to BRISBANE Voyage INTERNATIONAL

Refrigerating Machinery made by J. & E. HALL LTD DARTFORD Machine No. When made 1945

Insulation fitted by EVANS DEAKIN & CO. LTD When fitted 1946 System of Refrigeration CO2 & BRINE

Method of cooling Cargo Chambers BRINE CIRCULATION Insulating Material used SLACWOOL (INSULWOOL)

Number of Cargo Chambers insulated SIX Total refrigerated cargo capacity 28,772 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed ENGINE ROOM TANK TOP

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 Are all the units connected to all the refrigerated chambers YES

Compressors, driven direct or through ~~double~~ ^{single} reduction gearing. Compressors, single or double acting SINGLE TO EACH UNIT 2

Diameter of cylinders Diameter of piston rod Length of stroke No. of strokes per minute

Motive Power supplied from TWO BOILERS

Steam Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders ONE Diameter

Length of stroke Working pressure 110 LBS PER SQ. IN. 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 No. of Rated Kilowatts

Volts at revolutions per minute. Diameter of motor shafts at bearings

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 2 EACH WITH 3 CASINGS Cast iron or steel casings COPPER Cylindrical or rectangular CYL. ARE SAFETY VALVES FITTED TO WATER HEADERS. YES

No. of coils in each ONE PER CASING Material of coils COPPER Can each coil be readily shut off or disconnected YES

Water Circulating Pumps, No. and size of how worked ELECTRICALLY Gas Separators, No. of 4

Gas Evaporators, No. of 2 IN ONE CASING Cast iron or steel casings STEEL Pressure or gravity type PRESSURE IF PRESSURE TYPE ARE SAFETY VALVES FITTED.

No. of coils in each casing 1 - SET OF 4 1 - SET OF 3 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 2 - 2 1/2" 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 PORT & STARBOARD CHAMBERS NO. 1 TWEEN DECK, 3 SECTIONS EACH, PORT & STARBOARD CHAMBERS NO. 2 TWEEN DECK

8 SECTIONS EACH, PORT & STARBOARD CHAMBERS NO. 3 TWEEN DECK, 3 SECTIONS EACH.

Can each section be readily shut off or disconnected YES Are the control valves situated in an easily accessible position YES

COMMON
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 ✓
Steam Condensing Plant. State what provision is made for condensing steam, in terms of Section 4, Clauses 13 and 14 EXHAUST LED TO 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 ...						
" CONDENSER COILS ...						
" EVAPORATOR COILS ...						
" CONDENSER HEADERS AND CONNECTIONS						
" CONDENSER CASINGS ...						
" EVAPORATOR CASINGS ...						
NH ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE	26-4-46					
BRINE PIPING AFTER ERECTION IN PLACE...	21-8-46	25 LBS PER SQ. IN.	75 LBS PER SQ. IN.			

HAVE IMPORTANT STEEL JOINTS 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 7th & 8th JUNE 1946 Density of Brine 45 DEGREES by TRADDEL 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 0°F & 9°F
atmosphere 75°F (MAX) cooling water inlet and discharge 63°F & 68°F gas in condensers 82°F and evaporators -5°F
the average temperature of the refrigerated chambers 14°F and the rise of temperature in these chambers upon the expiration of TWELVE hours
time after the machinery and cooling appliances have been shut off 10°F

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.

ARTICLES SUPPLIED AS PER RULE	ADDITIONAL SPARE GEAR SUPPLIED
ARE THE WORKING PARTS OF THE MACHINES, PUMPS AND MOTORS RESPECTIVELY INTERCHANGEABLE? <u>YES</u>	
HAS THE SPARE GEAR REQUIRED BY THE RULES BEEN SUPPLIED? <u>YES</u>	
THE FOLLOWING ADDITIONAL ITEMS OF SPARE GEAR HAVE BEEN SUPPLIED:-	
10. LUBRICATOR PISTON LEATHERS.	2. BOLTS & NUTS FOR CROSSHEADS.
11. " GLAND "	2. " " " " CRANK PIN BEARINGS.
1. LEATHER MOULD.	2. " " " " COMPRESSOR COUPLING.
12. ADDITIONAL COMPRESSOR VALVE SPRINGS.	1. IMPELLER & SPINDLE FOR WATER PUMP.
1. " SET OF COMPRESSOR JOINT RINGS.	1. IMPELLER & SPINDLE FOR BRINE PUMP.
1. REGULATOR VALVE COMPLETE.	1. 1/8" CO ₂ VALVE WITH THREE SPARE PIPES.
2. SPRINGS FOR WATER RELIEF VALVE.	1. HYDROMETER. 1. HAND LUBRICATING PUMP.
2. " " CO ₂ " "	1. SET OF TOOLS. 1. SET OF RATCHET SCREW DRIVERS.
12. SAFETY DISCS.	FOR PUMP MOTORS.
2. BRASS CASED THERMOMETERS.	1. SET OF BRUSH SPRINGS.
2. BOLTS & NUTS FOR MAIN BEARINGS.	
FOR STEAM ENGINES.	
1. SET OF PISTON RINGS.	
1. SET OF GOVERNOR SPRINGS.	
1. SET OF GLAND PACKING.	

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

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. 132 F						✓	✓	"INSULWOOL"	8 INS.	1/8" T&G DOUBLE
A						✓	✓	"	4 INS.	1/8" T&G SINGLE
FRAME NO. 146 F						✓	✓	"	4 INS.	" "
A						✓	✓	"	8 INS. SIDES 1/8" T&G SINGLE 8 INS. CENTRE " DOUBLE	
FRAME NO. 116 F						✓	✓	"	8 INS.	1/8" T&G SINGLE
A						✓	✓	"	8 INS.	1/8" T&G DOUBLE
FRAME NO. 98 F (Boiler Room)										
A										
FRAME NO. (Engine Room) A										
F										
A										
FRAME NO. F										
A										
FRAME NO. F										
A										
FRAME NO. F										
A										
FRAME NO. (After Peak) F						✓	✓	"INSULWOOL"	10 INS.	1/8" T&G DOUBLE
SIDES ...						✓	✓	"	12 INS.	"
OVERHEADING ...						✓	✓	"	8 INS.	1/8" T&G 1/2" FLUTE
FLOORS OF CHAMBERS ...										
TRUNK HATCHWAYS ... (ACCESS TRUNKS TO HOLDS) ...						✓	✓	"INSULWOOL"	6 INS.	1/8" T&G DOUBLE
TRUNK RECESS, SIDES AND TOP ... TRIMMING HATCHWAY PLUGS. ...						1/2"	1/8" T&G.	"	6 INS.	1/2" T&G.
TUNNEL SIDES AND TOP ...										
TUNNEL RECESS, FRONT AND TOP ...										
FRAMES OR REVERSE FRAMES, FACE	FOUR INCHES "INSULWOOL" AND DOUBLE 1/8" T&G LINING									
BULKHEAD STIFFENERS, TOP	✓									
BOTTOM	✓									
AND FACE	✓									
RIBBAND ON TOP OF DECK	✓									
SIDE STRINGERS, TOP	✓									
BOTTOM	✓									
AND FACE	✓									
WEB FRAMES, SIDES	✓									
BRACKETS, TOP	✓									
BOTTOM	✓									
AND FACE	✓									
INSULATED HATCHES, MAIN	✓									
BILGE	✓									
MANHOLE	✓									
HATCHWAY COAMINGS, MAIN	✓									
BILGE	✓									
HOLD PILLARS	✓									
MASTS	✓									
VENTILATORS	6" "INSULWOOL" & DOUBLE 1/8" T&G LINING.									
Are insulated plugs fitted to provide easy access to bilge suction roses	✓					✓				
tank, air, and sounding pipes	YES									
heels of pillars	✓									
and manhole doors of tanks	✓					Are insulated plugs fitted to ventilators	YES.			
Are insulated plugs fitted to ventilators	YES.									
Are insulated plugs fitted to ventilators	YES.									
Are insulated plugs fitted to ventilators	YES.									
Are insulated plugs fitted to ventilators	YES.									
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	YES.									
Where Cooling Pipes pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof	YES.									
Cargo Battens, Dimensions and spacing, sides	2" x 2" SPACED 15"									
floors	✓									
tunnel top	✓									
fixed or portable	FIXED					Are screens fitted over the brine grids at chamber sides	NO			
Are screens fitted over the brine grids at chamber sides	NO					hinged or permanently fixed	✓			
Thermometer Tubes, No. and position in each chamber	ONE EACH IN NO. 1. THREE EACH IN NO. 2. & TWO EACH IN NO. 3.									
diameter	3 INCHES INSIDE					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										
SCUPPERS WITH LIQUID SEALED TRAPS. 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	PUMP SUCTIONS IN ENGINE ROOM 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.	✓									

© 2020

Lloyd's Register Foundation

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

IS THE INSULATION
How are the cork slabs

secured to the steel structure of the vessel PACKED BETWEEN WOOD GROUNDOS BOLTED TO FRAMES, BEAMS & STIFFENERS

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

Where are the doors worked from

Cooling Pipes in Chambers, diameter

1 1/4 INCH BORE.

Are they galvanised externally

NO

How are they arranged in the chambers

NO 1. TWEEN DK. CHAMBERS, 3 SECTIONS EACH (1) CEILING (2) SHIPS SIDE (3) WALL GRIDS. NO 2. TWEEN DK. CHAMBERS, 8 SECTIONS EACH (1, 2 & 3) CEILING, (4 & 5) SHIPS SIDE (6, 7 & 8) WALL GRIDS. NO 3. TWEEN DK. CHAMBERS, 3 SECTIONS EACH (1) CEILING, (2) SHIPS SIDE & AFTER BULKHEAD (3) INBOARD BULKHEAD & FORWARD END.

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers THAWING BRINE SERVICE FITTED.

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

EVANS DEAKIN & CO. LIMITED.

David E. Evans

Builders.

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

(If not, state date of approval)

SECRETARY'S LETTER 'E' 17-11-44. TO SYDNEY OFFICE.

and Insulation

Is the Refrigerating Machinery and Appliances duplicate of a previous case

YES.

If so, state name of vessel

"RIVER MITTA"

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 INSTALLATION OF THIS VESSEL HAS BEEN CONSTRUCTED UNDER SPECIAL SURVEY IN ACCORDANCE WITH THE RULES. THE MATERIALS AND WORKMANSHIP ARE GOOD. TESTS HAVE BEEN CARRIED OUT AS REQUIRED BY THE RULES WITH SATISFACTORY RESULTS AND THE INSTALLATION, IN MY OPINION IS ELIGIBLE TO BE CLASSED WITH RECORD OF LLOYD'S R.M.C. 6.46, IN THE SOCIETY'S REGISTER BOOK.

It is submitted that this
vessel is eligible for THE
RECORD. + LLOYD'S R.M.C 6.46

Roll 9/9/46

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	POWER.		INSULATED CARGO CHAMBERS.	
No. and whether Single or otherwise.	Makers.	Date of Construction.	System.	NO OF Type. COMPRESSORS		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.
2 UNITS	J.B. & E. HALL LTD.	1944 5	CARB. AMM	4	(1) BRINE (2) SLAQUOOL	-	28	6	28,772

Fee £42: 0: 0 { Fee applied for, 19

Travelling Expenses £ : { Received by me, 19

Surveyor to Lloyd's Register.

Committee's Minute

FRI. 13 SEP 1946

Assigned

+ Lloyd's R.M.C. 6.46

CERTIFICATE WRITTEN



© 2020

Lloyd's Register
Foundation