

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office 14 APR 1925)

Date of writing Report 14 APR 1925

When handed in at Local Office 14 APR 1925

Port of London

No. in

Reg. Book. Survey held at Dartford

Date: First Survey 16th MarchLast Survey 2nd April 1925.

(No. of Visits 6)

on the Refrigerating Machinery and Appliances of the S.S. "Ascania"

Tons { Gross
Net

Vessel built at High Walker, Newcastle By whom built Sir A. Armstrong-Whitworth Yard No. 971 When built 1924-5

Owners Cunard S.S. Co

Port belonging to

Voyage

Refrigerating Machinery made by J. & E. Hall Ltd. Dartford

Machine No. 6149
6150

When made 1925

Insulation fitted by

When fitted

System of Refrigeration CO₂ + Brine

Method of cooling Cargo Chambers Brine grids - Air blown over side grids Insulating Material used granulated cork

Number of Cargo Chambers insulated 4

Total refrigerated cargo capacity 54,250 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed "D" Deck by No 2 Hatch

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

Total refrigeration or ice-melting capacity in tons per 24 hours 40 tons Are all the units connected to the refrigerated chambers yes

Compressors, driven direct or through single double reduction gearing. Compressors, single or double acting DA No. of cylinders one per mach

Diameter of cylinders 3 3/4" Diameter of piston rod 2" Length of stroke 15" No. of strokes per minute 200

Motive Power supplied from Elec - Motors - direct coupled

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

Length of stroke Working pressure Diameter of crank shaft journals and pins = 5 1/2 inch diam + pins

Breadth and thickness of crank webs 7 3/4" X 3 9/16" No. of sections in crank shaft one Revolutions of engines per minute 100

Oil Engines, type 2 or 4 stroke cycle Single or double acting

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 Encl Ventilated No. of one per mach Rated 44 BHP Kilowatts

Volts at 220 V @ 90/100 revolutions per minute. Diameter of motor shafts at bearings 4 3/4"

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 1 per mach Cast iron or steel casings C1 Cylindrical or rectangular rectgl

No. of coils in each 4 Material of coils 3/4" X 1" SD Copper Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of 1-7" X 8" X 8" VD how worked Steam DA Gas Separators, No. of 1 del per mach

Gas Evaporators, No. of 1 per mach Cast iron or steel casings Steel RP Pressure or gravity type pressure

No. of coils in each casing 5 Material of coils 1" X 1 1/8" so Steel 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 2-12 1/2 Supplied by Shipbuilders cubic feet capacity, at revolutions per minute

Steam or electrically driven Elec 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 1-6 x 6 vert Duplex - driven by worm gear + motor.

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

No. of brine sections in each chamber 2 = No 2 T.D. Port 2 = No 2 T.D. Stbd

5 = No 2 T.D. For 8 = No 2 Hold

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

NOTE.-THE WORDS WHICH DO NOT APPLY SHOULD BE DELETED.

Im. 24-11

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.

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)						
GAS COMPRESSORS	27.3.25	1000lb	3000lb	1500lb		
" SEPARATORS	27.3.25	do	do	do		
" CONDENSER COILS	22/24 Aug 24	18/19 Mar 25	do	do		
" EVAPORATOR COILS	27.3.25	do	do	do		
" CONDENSER HEADERS AND CONNECTIONS	16.3.25	do	do	do		
" CONDENSER CASINGS	16.3.25	200lb	50lb	✓		
" EVAPORATOR CASINGS	2.4.25	200lb	50lb	✓		
NH, CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE						
BRINE PIPING AFTER ERECTION IN PLACE						

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) 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 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.

ARTICLES SUPPLIED AS PER RULE.	ADDITIONAL SPARE GEAR SUPPLIED.
1 crankshaft	4 sets, each of 4 valves, seats & springs, for comp.
4- Comp. pistons & rods, complete	18 adal. valve springs
1 bucket & rod for duplex water pump	1- guide for grinding in comp. valves
1- adal. brine pump fitted in E.R.	4- springs for CO ₂ safety valves
2- bolts & nuts for main bearing	1- hand pump for pressure lubricator
2- do do long rod big end.	2- CO ₂ pressure gauges
2- do do x head bearing	1- hydrometer
1- plunger sleeve ring for duplex brine pump	4- brass cased thermometers
1- set of valves & spring for do	2 safety discs
1- set of rings for water pump bucket	1 1/2 CO ₂ gauge valve - 3 spare
1- set of gaskets for water pumps	1 fitted box
1- impeller & spindle for cent. brine pumps	1- set of steam piston rings for
3- lengths of 1/2" I piping each 1 1/2' & 1 1/2' long	1 set of springs for do do
3- bands each 1 1/2' & 1 1/2'	do do valves
12 sockets & backnuts each 1 1/2' & 1 1/2'	
1 pr. of CO ₂ pipe flanges for each size fitted	
1- set of nuts & screws for screwing 1 1/2' & 1 1/2' pipe	
2- regulator spindles	
2- brine cocks & valves	
assorted bolts & nuts	
12- lubricator piston leathers	
12- do glands do	
4- sets of copper joint rings for comp. joints	
2- sets do do for other joints	
2 sets spl metal racking rings for	

ELECTRICAL SPARES

	for machine motors	motors for bent Brine Pumps	Motor for V.D. Water
Armature packed for storage	1	1	1
Field coil	1	1	1
Line of brush holders	1	1	1
Set of Carbon Brushes	1 set	1 set	1 set
Pair of bearing bushes	1	1	1
Starter Spares	1 set	1 set	1 set

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

J. & E. HALL, LTD
Manufacturers.

DESCRIPTION OF INSULATION.

IN LOWER HOLD CHAMBERS.						IN 'TWEEN DECK CHAMBERS.					
BULKHEADS.		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. _____ A										
	(Fore Peak)										
	FRAME No. _____ { F										
	_____ A										
	FRAME No. _____ { F										
	_____ A										
	FRAME No. _____ { F										
	_____ A										
	FRAME No. _____ { F										
	(Boiler Room) _____ A										
	FRAME No. _____ A										
	(Engine Room)										
	FRAME No. _____ { F										
	_____ A										
FRAME No. _____ { F											
_____ A											
FRAME No. _____ { F											
_____ A											
FRAME No. _____ F											
(After Peak)											
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

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 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

diameter 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. Where the chambers are situated below the load water line, 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, 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 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 has been examined under special survey during construction & the parts tested as set forth in report. The workmanship & materials are good

The machinery has now been forwarded to the Shipbuilders where it will be installed on board.

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 Duplex.	Makers.	Date of Construction.	System.	Type.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.
2 Single	J & E Hall Ltd	1925	Casibank	Hall	(1) Brine		40		

Fee $\text{LON} \frac{1}{2} \text{c}$ $\text{NWC} \frac{1}{2} \text{c}$ £ 9 :

Travelling Expenses £ 1 : 16 : 5

Committee's Minute

Assigned

for Nwc 4/4/25.
(Fee applied for)

Received by
See Report

FRI. 15 MAY 1925

For J. Jordan

P. J. Hoddart

Surveyor to Lloyd's Register.

See Nwc 79194



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Foundation