

Report on Refrigerating Machinery and Appliances.

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78568. (Number of Visits 3)

on the Refrigerating Machinery and Appliances of the m/v "Telemachus". Tons Gross 8265 Net 4857
Vessel built at Dundee By whom built Galedon S.S. & Co. Ltd. Card No. 397. When built 1943.
Owners Ocean S.S. Co. Ltd. Port belonging to Liverpool Voyage -
Refrigerating Machinery made by J. & E. Hall Ltd. Machine Nos. 9993, 9869. When made -
Insulation fitted by - When fitted - System of Refrigeration Carb. Anhyd.
Method of cooling Cargo Chambers Brine & Air Insulating Material used CORK
Number of Cargo Chambers insulated 6 Total refrigerated cargo capacity - cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed Engine Room Port side forward.

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 - Are all the units connected to all the refrigerated chambers Yes.
Compressors, driven direct ~~through~~ ^{through} reduction gearing. Compressors, single or double acting Single If multiple effect compression Yes.
Are relief valves or safety discs fitted Yes. No. of cylinders to each unit 2. Diameter of cylinders 2 1/2 in.
Diameter of piston rod 1 1/32 in. Length of stroke 7 in. No. of revolutions per minute 360/240
Motive Power supplied from 4 Diesel generators. (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 Allison 2 or 4 stroke cycle. Single or double acting Single B.H.P. 363.
No. of cylinders 5. Diameter 325 mm. Length of stroke 370 mm. Span of bearings as per Rule -
Maximum pressure in cylinders - Diameter of crank shaft journals and pins 9 1/16 in. 8 in.
Breadth and thickness of crank webs 2 7/16 x 12. No. of sections in crank shaft 1. Revolutions of engine per minute 375.

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 Yes.
Can the internal surfaces of the receivers be examined and cleaned Yes. Is a drain fitted at the lowest part of each receiver Yes.
No. of Receivers 4. Cubic capacity of each 11 cu. ft. Internal diameter - thickness -
Seamless, lap welded or riveted longitudinal joint - Material - Range of tensile strength - Working pressure by Rules -

Electric Motors, type OPEN DRIP PROOF. No. of TWO CONTINUOUSLY RATED. 90 HP. Kilowatts 220. Volts at 240/360. revolutions per minute. Diameter of motor shafts at bearings 4 1/2".
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. Cast iron or steel casings 1 B.I. 1 Copper. Cylindrical or rectangular 1 cyl. 1 bath. Are safety valves fitted to casings Yes. No. of coils in each 11 x 6. Material of coils Copper. Can each coil be readily disconnected Yes.

Water Circulating Pumps, No. and size of pumps available 1 @ 24,000 S.F.H. how worked Electric. Gas Separators, No. of 2.
Gas Evaporators, No. of 2. Cast iron or steel casings 2 D. Steel. Pressure or gravity type pressure. If pressure type, are safety valves fitted Yes. No. of coils in each casing 9. Material of coils S.D. Steel. Can each coil be readily disconnected Yes.

Direct Expansion Brine Cooled Batteries, No. of 2. 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 5. Material of coils S.D. Steel. Can each coil be readily shut off or disconnected Yes. Total cooling surface of battery coils - Is a watertight tray fitted under each battery Yes.

Air Circulating Fans, Total No. of 2. each of 1500, 2000, 1000. cubic feet capacity, at 1550, 2000, 2000. revolutions per minute
Steam or electrically driven ELECTRICALLY. Where spare fans are supplied are these fitted in position ready for coupling up SPARE STORED ON BOARD.

Brine Circulating Pumps, No. and size of, including the additional pump 3 @ 13,000 S.F.H. 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 L.T.D.P. & S. Lockers 4 in each, Centin Lockers 2 in each.
square of hold 2.

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.

PRINTED IN ENGLAND

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...
 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... 44 2
British Corporation 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						
Separators						
Multiple Effect Receivers						
Condenser Coils (Aft)	9/4/51	980.	-	2000	-	Satisfactory
Evaporator Coils (Port)	9/4/51	250.	-	2000.	-	Satisfactory
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.	9/4/51	20.	45	-	-	Satisfactory

Have important steel castings and forgings been tested in accordance with the Rules... -
 Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory...
 Dates of test... Density of Brine 46°F by Woodhall 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... -6°F & 8°F, outflow and return brine... -20°F & -15°F
 atmosphere... 45°F cooling water inlet and discharge... 42°F & 45°F gas in condensers... 53°F and evaporators... -21°F
 the average temperature of the refrigerated chambers... 11°F 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: 1 - Compressor crankshaft.
1 - Compressor liner
1 - set of main bearings.
1 - brine pump impeller & shaft.
1 - circulating pump impeller & shaft.

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					<u>No 3. LOWER TWEEN DECK.</u>				
Frame No.	F									
Frame No. 104	A	FORE SIDE	2" AIR SPACE	6" SPAN CORK	1 1/2" T&G SPRUCE					
	F	AFT SIDE	GRAN CORK	12"	1 1/2" T&G SPRUCE					
Frame No. 90	F	FORE SIDE	GRAN CORK	12"	1 1/2" T&G SPRUCE					
	A									
Frame No. 84 (Main Room)	F	FORE SIDE	GRAN CORK	8"	1 1/2" T&G SPRUCE					
	A									
Frame No. (Engine Room)	A									
Frame No.	F									
Frame No.	A									
Frame No.	F									
	A									
Frame No.	F									
	A									
Frame No. (After Peak)	F									
Sides			GRAN CORK	15 1/2"	1 1/2" T&G					
Overheading			GRAN CORK	18"	1 1/2" T&G					
Floors of Chambers			GRAN CORK	9" BY SIDES	1 1/2" T&G SPRUCE					
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... <u>Yes</u> ... tank, air, and sounding pipes... <u>Yes</u> ... heels of pillars... <u>Yes</u> and manhole doors of tanks... <u>Yes</u> ... Are insulated plugs fitted to ventilators... cargo ports... <u>Yes</u> ... and side lights... <u>Yes</u> Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected... <u>Yes</u> ... if so, how... <u>Blocked</u> 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... <u>Yes</u> Cargo Battens, Dimensions and spacing, sides... <u>2" x 2" Spruce 14" apart</u> ... floors... <u>3" x 3" Elm 15" apart</u> ... tunnel top... <u>Yes</u> fixed or portable... <u>Fixed</u> ... Are screens fitted over the brine grids at chamber sides... <u>Yes</u> ... hinged or permanently fixed... <u>Yes</u> Thermometer Tubes, No. and position in each chamber... <u>L.H., P.S. and square of hold - 1 fixed & 1 off. in each, 1 in each other chamber</u> diameter... <u>3"</u> ... 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... <u>Yes</u> Draining Arrangements. What provision is made for draining the inside of the chambers... <u>brine sealed scuppers</u> Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off... <u>A. P. Valve</u> What provision is made for draining the refrigerating machinery room... <u>Engine room bilge</u> brine return room... <u>direct to E.P. bilge</u> ... fan room... <u>hatch way scupper</u> ... water circulating pump room... <u>E.P. bilge</u> 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 *None.*

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 *Beaded in between*

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans *✓*

Are they permanently fixed or collapsible, or portable *Permanent*

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 29/32 in.* Minimum thickness *7.0 g.* Are they galvanised externally *Yes.*

How are they arranged in the chambers *Roof & side grids in L.T.D. P.S. side & centre lockers and spaces of hatch. Batteries in L.H.*

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers *Hot brine from steam brine heater.*

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

J. B. Woolly, J. M. Gardiner, J. B. Stuthers Surveyors.

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 *Complete.*

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

Outboard and inboard compressor cylinders, pistons, rods, valves, bearings and crankshafts examined.

All three brine pumps and the S.W. circulating pump opened & examined.

Brine piping examined & tested to 45 lbs./sq. in.

Condenser and evaporator coils examined and a submersion test to 2000 lbs./sq. in. was carried out on the after condenser and port evaporator coils.

All thermometers checked for accuracy.

No. 2 (port forward) diesel generator engine cylinders, pistons, rods, valves & gears, bearing and crankshaft examined.

ELECTRICAL EQUIPMENT. *The electric motors, control gear and cables for the compressors, brine pumps, circulating pump and fans of the refriq. installation also Port side generators and switchboards, examined and insulation resistance measured.*

Examination of No. 3. Lower Green DK and Hold Insulation completed.

The refrigeration machinery and appliances of this vessel, so far as now seen, are eligible to be classed RMC 451 To maintain temperature of 0°F in any one 'tween deck chamber, and 10°F in all other spaces, with sea temperature 90°F maximum and with the \pm below the notation.

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours. Tons.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.				No.	Capacity. Cubic ft.
2	4	Carl Anky	J. E. Hall	Grand Slab Cork and Cotton silicate.	Brine - Air	46	Yes	6	

Fee £ : : Fee applied for, 19

Travelling Expenses £ : : Received by me, 19

J. B. Woolly, J. M. Gardiner, J. B. Stuthers Surveyors to Lloyd's Register.

Committee's Minute *16 MAY 1951*

Assigned *RMC (in black) 451 " 20*

Maintain temperature 0°F. in any one 'tween deck chamber, & 10°F. in all other spaces, with sea temp. 90°F max



Certificate to be sent to

NOTE THE WORDS WHICH DO NOT