

R.M.C.N.E

R. M. C. No. 60377

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office 21 JUN 1937)

Date of writing Report 21 JUN 1937

When handed in at Local Office 21 JUN 1937

Port of London

No. in Reg. Book. 74990

Survey held at London.

Date: First Survey 6 November 1936

Last Survey 12 June 1937

(No. of Visits) EEEVEN

on the Refrigerating Machinery and Appliances of the S.S. FALCON

Tons { Gross 1025 Net 433

Vessel built at Iron.

By whom built Ales S. B. Coll Yard No.

When built 1927-11

Owners General Steam Navigation Co Port belonging to London

Voyage

Refrigerating Machinery made by J. S. Hall Ltd.

Machine No. 4399 When made 1928

Insulation fitted by Messrs Bell & Binnie Ltd. When fitted May/June 1937.

System of Refrigeration CO2 + Brine

Method of cooling Cargo Chambers Brine grids

Insulating Material used

Number of Cargo Chambers insulated one

Total refrigerated cargo capacity 14,000 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed Main E.R. Starboard side

Refrigerating Units, No. of one No. of machs one Cubic feet of air delivered per hour.

Total refrigeration or ice-melting capacity in tons per 24 hours 6 1/2 Are all the units connected to all the refrigerated chambers yes

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

Diameter of cylinders 2 13/16" Diameter of piston rod 1 1/4" Length of stroke 8" No. of strokes per minute 300

Motive Power supplied from Steam engine thro' two throw crankshaft.

Steam Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders one Diameter 10"

Length of stroke 8" Working pressure Diameter of crank shaft journals and pins 4 1/2"

Breadth and thickness of crank webs 6 1/2 x 2 1/8" No. of sections in crank shaft one Revolutions of CO2 mach per minute 150

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 one Cast iron or steel casings cast iron Cylindrical or rectangular rectangular

No. of coils in each 3 Material of coils S.D. copper 3/4" b x 1" o.d. Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of one 6" x 4 1/2" stroke S.A. how worked off crankshaft Gas Separators, No. of 2

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

No. of coils in each casing 2 Material of coils S.D. Steel 1" b x 1 1/2" o.d. 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 - 4 1/2" x 5" x 6" V.D. how worked Steam direct

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

No. of brine sections in each chamber 5

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. 6.31.-T.



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 yes
 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)	10-11-36		350 lbs			
GAS COMPRESSORS	11-11-36	1000 lbs	3000 lbs	1500 lbs	St.	
SEPARATORS	10-11-36	do.	do.	do.	St.	
CONDENSER COILS	6-11-36	do.	do.	do.	St.	
EVAPORATOR COILS		do.	do.	do.	St.	
CONDENSER HEADERS AND CONNECTIONS	11-11-36	do.	do.	do.	St.	
CONDENSER CASINGS	6-11-36	5 to 10 lbs	20 lbs		St.	
EVAPORATOR CASINGS		open top.				
NH ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE						
BRINE PIPING AFTER ERECTION IN PLACE	9-6-37	15 lbs/p	50 lbs/p			all tight + satisfactory.

Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory Yes.
 Dates of test 10th, 11th, 12th Density of Brine 54 by Jwaddel 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 -11° & -9°
 atmosphere 68° cooling water inlet and discharge 71° & 77° gas in condensers 88° and evaporators -14°
 the average temperature of the refrigerated chambers 7.3° 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 22°

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

ARTICLES SUPPLIED AS PER RULE.	ADDITIONAL SPARE GEAR SUPPLIED.
1 piston & rod for compressor with rings 1 set steam piston rings for engine 2 bolts & nuts for main bearings 2 do. do. connecting rods big end 2 do. do. engine crosshead 2 do. do. compressor do. 1 set piston rings for brine pump 1 additional brine pump in engine room 6 lubricator piston leathers 6 do. glands do. 1 set valves for water pump 1 set valves for brine pump. 1 set 2 leather moulds 3 lengths each 1/2" & 1/4" r.r. piping 3 bends each do. do. 12 sockets & backnuts each size 1 setatchet screwing dies for 1/4" & 1/2" pipe 2 sets copper joint rings for compr joints 1 set do. do. for other joints 2 sets special metal rings for compr gland.	1 set of 4 valves & springs for compr 8 addl. springs for compressor 1 spare spring each type fitted 1 set springs for brine pump valve 1 pump for lubricator 1 hydrometer 2 brass cased thermometer 6 safety discs 1-1/2" CO ₂ valve complete 1 CO ₂ gauge 3 spade pipes for CO ₂ valve 1 fitted box for compr parts

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

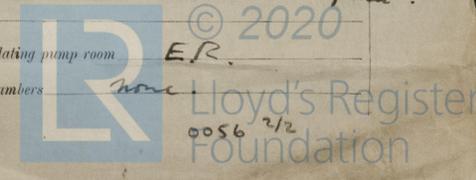
J. & E. HALL, LTD. Manufacturer.
 Director

DESCRIPTION OF INSULATION.

	IN AFTER HOLD					IN 'TWEEN DECK CHAMBERS.				
	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of disto.	Inner Lining.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of disto.	Inner Lining.
FRAME No. (Fore Peak)	A									
FRAME No.	F									
FRAME No.	A									
FRAME No.	F									
FRAME No.	A									
FRAME No. 32 (Boiler Room)	F	none	3/4" T&G + steel plate	cork	10"	none				
FRAME No. 24 (Engine Room)	A	none	3/4" T&G	cork	10"	none				
FRAME No.	F									
FRAME No.	A									
FRAME No.	F									
FRAME No. 6 (After Peak)	F	none	3/4" T&G	cork	7"	none				
SIDES		none	ditto.	ditto	ditto					
OVERHEADING		ditto	ditto.	ditto.	8"	ditto.				
FLOORS OF CHAMBERS		ditto.	1 1/2" asphalt above.	3/4" T&G	cork	10" in ER) with steel plates				
TRUNK HATCHWAYS		none								
THRUST RECESS, SIDES AND TOP		in E.R.								
TUNNEL SIDES AND TOP		Tunnel top is floor of chamber								
TUNNEL RECESS, FRONT AND TOP		none								

FRAMES OR REVERSE FRAMES, FACE 2" minimum of cork covered with 1" 3/4" T&G boards
 BULKHEAD STIFFENERS, TOP in Hold 1 1/2" to 2" cork + 1" 3/4" T&G BOTTOM as for top. AND FACE 1" cork + 1" 3/4" T&G.
 RIBBAND ON TOP OF DECKS
 SIDE STRINGERS, TOP 4" cork + 1" 3/4" T&G BOTTOM AND FACE 1" cork with 1" 3/4" T&G.
 WEB FRAMES, SIDES 2" cork + 1" 3/4" T&G AND FACE 1" cork with 1" 3/4" T&G.
 BRACKETS, TOP increased in ship's side insulation BOTTOM AND FACE 3/4" + 1" T&G boards on top of 2" ground.
 INSULATED HATCHES, MAIN 4' x 2' p.p. 6" cork BILGE none MANHOLE none
 HATCHWAY COAMINGS, MAIN 12" p.p. sheathed 1/8" steel BILGE none
 HOLD PILLARS 7" p.p.
 MASTS none VENTILATORS same action as main hatches.
 Are insulated plugs fitted to provide easy access to bilge suction roses none tank, air, and sounding pipes portable methods of pillars
 and manhole doors of tanks Are insulated plugs fitted to ventilators Yes. cargo ports none and side lights none
 Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected Yes if so, how Insulation below floor Asphalt on top.

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 none
 Coal Bunker Bulkheads, and Brine Outflow and Return Pipes passing through coal bunkers. Is the insulation, so far as practicable, fireproof none
 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" p.p. 12" apart floors 2 1/2" x 2" portable tunnel top
 fixed or portable fixed Are screens fitted over the brine grids at chamber sides yes. hinged or permanently fixed portable
 Thermometer Tubes, No. and position in each chamber 3. 1 attached for a mid chamber port side 1 mid chamber aft.
 diameter 2" internal diameter. 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
 liquid sealed N.R. valves. Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off secured plugs fitted.
 What provision is made for draining the refrigerating machinery room in E.R.
 brine return room in E.R. fan room none water circulating pump room E.R.
 Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers none



D. Gemmell.

Sounding Pipes, No. and position in each chamber situated below the load water line *Chamber not below 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 *None*

How is the expanded metal secured in place

How are the cork slabs secured to the steel structure of the vessel *5" cork slab set in pitch + covered asphalt*

Air Trunkways in Chambers, inside dimensions, main *None* and branch *None*

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 1/2" 1/0* Are they galvanised externally *No*

How are they arranged in the chambers *5 circuits*

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers *None*

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

Bell & Burnie Ltd per R.P. McGeorge Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery and Insulation *Yes*
(If not, state date of approval)

Is the Refrigerating Machinery and Appliances duplicate of a previous case *No*. 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 removed from the S.S. Celyon Bul Bul and has been completely overhauled examined and the parts tested at the Makers Works, and it will be eligible for the notation Lloyds R.M.C. (with date) when the installation and testing have been satisfactorily completed.*

See Secretary's letter to Owners dated 29th October 1936.

The insulation of this vessel has been examined during construction, material and workmanship found sound, satisfactory and according to approved plans; in my opinion the installation is eligible to have record of LLOYDS R.M.C. 6.37.

In view of the somewhat rapid rise in temperature after the cooling down test it was considered prudent to drill test the insulation for fullness. This was done with satisfactory results.

J.H. Milton

It is submitted that this vessel is eligible for THE RECORD.

LLOYDS

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	POWER.		INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity. Cubic ft.
1	1	Cableway	J. E. Hall Ltd.	1936	Borris Cork		6 1/2	1	14,000

Fee £ 6 : - : - { Fee applied for, 21 JUN 1937

Travelling Expenses £ : : : { Received by me, 9. 19. 37

D. Gemmell.
Surveyor to Lloyd's Register.

Committee's Minute *FRI 25 JUN 1937*

Assigned *Lloyds Rmc 6.37*

CERTIFICATE WRITTEN
24637.



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