

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

OCT 10 1940

Date of writing Report 5th Oct 1940 When handed in at Local Office 7th Oct/40 Port of Glasgow.
 No. in Reg. Book. 87257 Survey held at Glasgow. Date: First Survey 6.5.40 Last Survey 1st Oct 1940
 (No. of Visits 8 Eight)
 on the Refrigerating Machinery and Appliances of the S.S. BURNSIDE Tons { Gross 5659 Net 3280.
 Vessel built at Glasgow. By whom built Barclay Curle & Co Yard No. 676 When built 1940
 Owners Burns Philp & Co Port belonging to Glasgow. Voyage
 Refrigerating Machinery made by J & C. Hall, Ltd. Machine Nos. 10491 When made 1940
 Insulation fitted by Donald - Bean When fitted 1940 System of Refrigeration CO₂ Brine
 Method of cooling Cargo Chambers Brine Grids Insulating Material used Slab Gran Cork.
 Number of Cargo Chambers insulated 7. Total refrigerated cargo capacity 39,105 cubic feet.
 Last Report No. 1152 Port Lon

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed

Refrigerating Units, No. of _____ No. of machines _____ Is each machine independent _____
 Total refrigeration or ice-melting capacity in tons per 24 hours _____ Are all the units connected to all the refrigerated chambers _____
Compressors, driven direct or through ^{single} _{double} } reduction gearing. Compressors, single or double acting _____ If multiple effect compression _____
 are relief valves or safety discs fitted _____ No. of cylinders to each unit _____ Diameter of cylinders _____
 Diameter of piston rod _____ Length of stroke _____ No. of revolutions per minute _____
Motive Power supplied from _____ (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 _____ 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 _____
AIR RECEIVERS:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule _____
 Can the internal surfaces of the receivers be examined _____ What means are provided for cleansing their inner surfaces _____
 Is there a drain arrangement fitted at the lowest part of each receiver _____ If made under survey _____
No. of Receivers _____ Cubic capacity of each _____ Internal diameter _____ thickness _____
 Seamless, lap welded or riveted longitudinal joint _____ Material _____ Range of tensile strength _____ Working pressure by Rules _____
Electric Motors, type _____ No. of _____ Rated _____ Kilowatts _____
 Volts at _____ revolutions per minute. Diameter of motor shafts at bearings _____
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 _____ Cast iron or steel casings _____ Cylindrical or rectangular _____ Are safety valves fitted _____
 to casings _____ No. of coils in each _____ Material of coils _____ Can each coil be readily shut off or disconnected _____
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 _____ If pressure type, are safety valves fitted _____
 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 _____ 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 _____ 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.

See Drawing Part 1152



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

Is the exhaust steam led to the main and auxiliary condensers Yes

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						
EVAPORATOR COILS						
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	26-6-40	18 lbs	90 lbs			

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 Yes

Dates of test 19-9-40 Density of Brine 48° by Thames hydrometer

Temperatures (when the cargo chambers are cooled down to the required test temperatures)

or, delivery and return air at direct expansion or brine cooled batteries - & -, outflow and return brine -5°F & -4.5°F

atmosphere 51°F cooling water inlet and discharge 51°F & 56°F gas in condensers 67° & 71°F and evaporators -13°F

the average temperature of the refrigerated chambers 5°F and the rise of temperature in these chambers upon the expiration of 9 & 21 hours

time after the machinery and cooling appliances have been shut off 10°F & 19°F

SPARE GEAR.

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

Has the spare gear required by the Rules been supplied Yes, as per List in London Rpt.

Additional Spare Gear 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. (Core Peak) A										
FRAME NO. 91 F						None	1/2" Cement	Slab Cork	1 1/2"	Steel Bld.
FRAME NO. 124 A						None	Duplex 1/2" Cement Sheeting	Slab Cork	11"	1/4" T & G with Sheet Steel
FRAME NO. 334 F						None	Duplex 1/2" Cement Sheeting	-do-	12"	Steel Bld.
FRAME NO. 51 (Berth-Room) A						None	Duplex 1/2" Cement Sheeting	Slab Cork	1 1/2"	Steel Bld.
FRAME NO. (Engine Room) A										
FRAME NO. F										
FRAME NO. A										
FRAME NO. F										
FRAME NO. A										
FRAME NO. F										
FRAME NO. A										
FRAME NO. F										
FRAME NO. (After Peak) F										
SIDES						None	Duplex 1/2" Cement Sheeting	Slab Cork	1 1/2"	Shell
OVERHEADING						"	"	"	"	Deck.
FLOORS OF CHAMBERS						"	1/4" T & G, Duplex Cement Sheeting	Gran Cork	13"	Steel Deck with 1 1/2" Asphalt. on top of 2" Slab Cork.
TRUNK HATCHWAYS										
THRUST RECESS, SIDES AND TOP										
TUNNEL SIDES AND TOP										
TUNNEL RECESS, FRONT AND TOP										

FRAMES OR REVERSE FRAMES, FACE 4 1/2" Slab Cork with 1/2" Cement

BULKHEAD STIFFENERS, TOP BOTTOM AND FACE 8 1/2" Slab cork with 1/2" Cement.

RIBBAND ON TOP OF DECK

SIDE STRINGERS, TOP BOTTOM AND FACE

WEB FRAMES, SIDES AND FACE 4 1/2" Slab Cork with 1/2" Duplex Cement Sheeting

BRACKETS, TOP (Beam Knees) BOTTOM AND FACE 3" Slab Cork 1/2" T & G 1 1/2" Ply "Bandal" Sheeting.

INSULATED HATCHES, MAIN BILGE MANHOLE

HATCHWAY COAMINGS, MAIN BILGE

HOLD PILLARS

MAST 7" Slab Cork with Galv. Steel Sheeting VENTILATORS 6" Slab Cork with Galv. Steel Sheeting

Are insulated plugs fitted to provide easy access to bilge suction roses tank, air, and sounding pipes Insulation portable heels of pillars

and manhole doors of tanks Are insulated plugs fitted to ventilators Yes 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

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 all wood insulation through 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 5 1/2" 4" apart floors 3x3 w.p 9" apart tunnel top

fized or portable portable Are screens fitted over the brine grids at chamber sides Yes hinged or permanently fized portable

Thermometer Tubes, No. and position in each chamber 105-1 104-1 103-3 102-2 101-2 106-2 107-2

diameter 2 1/2" 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

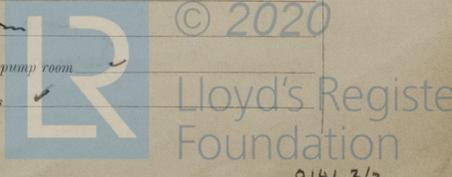
Draining Arrangements. What provision is made for draining the inside of the chambers Scuppers (Bell Trap Type)

Where scuppers, scupper pipes, and drain pipes are fitted are means provided for blanking them off Yes - Screws Caps.

What provision is made for draining the refrigerating machinery room in main Engine 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 yes Are cement facings reinforced with expanded steel lattice no
 How is the expanded metal secured in place ✓
 How are the cork slabs secured to the steel structure of the vessel lashed to frames.
Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans yes
 Are they permanently fixed or collapsible, or portable portable
 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" **Minimum thickness** 7 SWS. **Are they galvanised externally** yes
 How are they arranged in the chambers on sides & top.
Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers Brine Heater.

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

for Ronald Bean to. G. H. Smith. 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 Complete.

General Remarks (State quality of workmanship, opinions as to class, &c.)
 The materials and workmanship are good.
 The refrigerating machinery and appliances have been fitted under special survey, tried under working conditions and found satisfactory.
 The installation is, in our opinion, eligible for classification and the record + LLOYD'S R.M.C. (9) 40

Noted
 J.M.
 10/10/40.

Rob
 7/10/40

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	2	Carlsberg	J. & C. Kalle, Ltd.	1940	(1) Brine (2) Slab & gran. coils	29	HO	7	39,105

Fee Lon. A/c £2 £ 6 : 0 : 0 { Fee applied for 8 - OCT 1940
GLS. A/c £4 { Received by me, 5. 11. 1940
 Travelling Expenses £ : : {
 T. R. McIlvenna + [Signature]
 Surveyor to Lloyd's Register.

Committee's Minute GLASGOW 8 - OCT 1940
 Assigned Lloyds Rmc 10. 40

CERTIFICATE WRITTEN



Certificate to be sent to
 [Signature]