

Report on Refrigerating Machinery and Appliances.

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No. in Reg. Book. Survey held at London Date: First Survey 7 July 1948 Last Survey 5 November 1948
(Number of Visits 14+2=16)

on the Refrigerating Machinery and Appliances of the S.S. CITY OF EDINBURGH Tons (Gross/Net)

Vessel built at _____ By whom built _____ Yard No. _____ When built _____

Owners _____ Port belonging to _____ Voyage _____

Refrigerating Machinery made by J. E. Hall, Ltd Machine Nos. 13410 When made 1948

Insulation fitted by _____ When fitted _____ System of Refrigeration CO₂

Method of cooling Cargo Chambers _____ Insulating Material used _____

Number of Cargo Chambers insulated _____ Total refrigerated cargo capacity 122,400 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed _____

Refrigerating Units, No. of 12 No. of machines 1 Is each/machine independent yes

Total refrigeration or ice-melting capacity in tons per 24 hours 115 Are all the units connected to all the refrigerated chambers _____

Compressors, driven direct or through single reduction gearing. Compressors, single or double acting double multiple effect compression no

Are relief valves or safety discs fitted yes No. of cylinders to each unit one 2 Diameter of cylinders 6 1/8"

Diameter of piston rod 2 3/4" Length of stroke 21" No. of revolutions per minute 85

Motive Power supplied from direct coupled steam engine
(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 2 Diameter 16" and 29"

Length of stroke 21 Working pressure 120 lbs sq in Diameter of crank shaft journals and pins 10 journals, 9 pins

Breadth and thickness of crank webs 10 1/2 x 4 3/16 No. of sections in crank shaft 2 Revolutions of engines per minute 85

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:—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 _____

Can the internal surfaces of the receivers be examined and cleaned _____ Is a drain fitted at the lowest part of each receiver _____

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 2 each of 10 casings Cast iron or steel casings Copper Cylindrical or rectangular Cylindrical Are safety valves fitted

to casings yes No. of coils in each casing 1 Material of coils Alum brass Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of pumps available _____ how worked _____ Gas Separators, No. of 4

Gas Evaporators, No. of 2 Cast iron or steel casings Steel Pressure or gravity type pressure If pressure type, are safety

valves fitted vent pipe fitted No. of coils in each casing 13 Material of coils S.D. steel tube Can each coil be readily shut off or disconnected yes

Direct Expansion or Brine Cooled Batteries, No. of 10 Are there two separate systems, so that one may be in use while the other is being

cleared of snow no No. of coils in each battery see list Material of coils steel Can each coil be readily shut off or

disconnected yes Total cooling surface of battery coils 15,660 sq ft Is a watertight tray fitted under each battery yes

Air Circulating Fans, Total No. of 10 each of see list cubic feet capacity, at see list revolutions per minute

Steam or electrically driven electrically Where spare fans are supplied are these fitted in position ready for coupling up no

Brine Circulating Pumps, No. and size of, including the additional pump 3 vert cent 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 see list

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



Are thermometers fitted to the outflow and to each return brine pipe.....Where the tanks are closed are they ventilated as per Rule.....
 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.....

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure	Air Test Pressure.	Stamped.	REMARKS.
Engine Cylinders (if tested)	H.P. 13-8-48		350 lbs sq in	—	End	
Steam Condenser	L.P. 7-7-48		250 do	—	End	
Gas Compressors	9-7-48		25 do	—	End	
Gas Compressors	17-9-48	1000 lbs sq in	3000 lbs sq in	1500 lbs sq in	End	
Separators	1-11-48	1000 "	3000 "	1500 "	End	
Separators	5-11-48	1000 "	3000 "	1500 "	End	
Multiple Effect Receivers	not fitted					
Condenser Coils	Stock	1000 "	3000 "	1500 "	End	
Evaporator Coils	18-8-48 25-8-48	1000 "	3000 "	1500 "	End	
Condenser Headers and Connections	20-8-48	1000 "	3000 "	1500 "	End	
Condenser Casings	10-9-48	15/20 "	30 "	—	End	
Evaporator Casings	30-8-48 8-9-48	15/20 "	40 "	—	End	
NH ₃ Condenser, Evaporator and Air Cooler Coils after erection in place						
Brine Piping after erection in place						

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..... by..... 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..... &....., 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.

Are the working parts of the machines, pumps and motors respectively, interchangeable.....
 Has the spare gear required by the Rules been supplied.....
 Additional Spare Gear Supplied:— *See attached list.*

The foregoing is a correct description of the Refrigerating Machinery.

J. & E. HALL, LTD.

J. Hall

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.	F									
Frame No.	A									
Frame No.	F									
Frame No.	A									
Frame No. (Boiler Room)	F									
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. (After Peak)	F									
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.....
 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.....
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. 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. Are the arrangements satisfactory and in accordance with the approved plans.....

Are they permanently fixed or collapsible, or 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..... **Minimum thickness**..... **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 and appliances of this vessel as now reported have been constructed under special survey in conformity with the Society's Rules, regulations and the Secretary's letters.

The scantlings and arrangements are in accordance with, or equivalent to, those shown on the approved plans. The materials and workmanship are good.

In my opinion the Refrigerating machinery and appliances of this vessel will be eligible for the notation +LLOYDS RMC (with date) when the installation and listing have been satisfactorily carried out.

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	carb anhy	J & E Hall Ltd	1948		115			

LONG 1207 Dec No. 73548 For applied 19...
 Travelling Expenses £ : : Received by me, 19...
 J. M. Selley
 Surveyor to Lloyd's Register.

Committee's Minute... GLASGOW 25 JAN 1949

Assigned... See Minute on Jls. Rpt. No. 73548



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