

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office

21 SEP 1943

JAN 1944

Date of writing Report

21 SEP 1943

When handed in at Local Office

21 SEP 1943

Port of London

No. in

Reg. Book. Survey held at London

Date: First Survey 12th March

Last Survey 7th Sept 1943

(No. of Visits 16)

on the Refrigerating Machinery and Appliances of the

CLAN UROUHAUT

Tons

Gross

Net

Vessel built at Greenock

By whom built Greenock Dockyard & Shipyard No. 454

When built 1943

Owners

Port belonging to

Voyage

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

Machine Nos. 11211, 11212

When made 1943

Insulation fitted by

When fitted

System of Refrigeration CO₂ + Brine

Method of cooling Cargo Chambers Air circulation

Insulating Material used

Number of Cargo Chambers insulated 12

Total refrigerated cargo capacity 423,250 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY.

Where placed Main deck, midship P&S. of engine casing.

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 143

Are all the units connected to all the refrigerated chambers yes

Compressors, driven direct or through double reduction gearing.

Compressors, single or double acting double

If multiple effect compression no

Are relief valves or safety discs fitted yes

No. of cylinders to each unit one

Diameter of cylinders 6 1/2"

Diameter of piston rod 2 3/4"

Length of stroke 18"

No. of revolutions per minute 145

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 2

Diameter H.P. = 12", L.P. = 24"

Length of stroke 18"

Working pressure 120 lb. sq. in.

Diameter of crank shaft journals and pins 7 1/2" jls - 8" pins

Breadth and thickness of crank webs 11" x 6"

No. of sections in crank shaft one

Revolutions of engines per minute 145

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 2

Cast iron or steel casings

14 Copper casings per unit

Cylindrical or rectangular

cylindrical

Are safety valves fitted

to casings yes

on water headers

No. of coils in each 1 in each casing

Material of coils copper

Can each coil be readily shut off or disconnected yes

Water Circulating Pumps, No. and size of pumps available 2-6 best cast iron how worked electrically

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

No. of coils in each casing 15

Material of coils S.D. steel 1 1/2"

Can each coil be readily shut off or disconnected yes

Direct Expansion or Brine Cooled Batteries, No. of 18

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

Material of coils 1 1/2" box steel

Can each coil be readily shut off or

disconnected yes

Total cooling surface of battery coils 26,000 sq. ft.

Is a watertight tray fitted under each battery yes

Air Circulating Fans, Total No. of

See list attached

cubic feet capacity, at

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 3-4" centrifugal

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 attached

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. 11.37.—T. (MADE IN ENGLAND.)

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Common
Are thermometers fitted to the outflow and to each return brine pipe *yes* 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 *yes*
Is the exhaust steam led to the main and auxiliary condensers *normally to special condensers, alternatively to Auxil. exhaust line.*

HYDRAULIC AND OTHER TESTS.						
DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
H.P. -- 6-4-43	9-4-43	120lb. □	350lb. □	✓	DL	
ENGINE CYLINDERS (IF TESTED) L.P. --	23-3-43		250lb. □			
	15-6-43					
GAS COMPRESSORS	7-9-43	1000lb. □	3000lb. □	1500lb. □	DL, R.M.	
" SEPARATORS	13-8-43	do.	do.	do.	DL	
" MULTIPLE EFFECT RECEIVERS...	not fitted					
	16-4-43	30-4-43				
" CONDENSER COILS	20-4-43	1000lb. □	3000lb. □	1500lb. □	DL	
	23-3-43					
" EVAPORATOR COILS	12-3-43	do.	do.	do.	DL	
	9-4-43					
" CONDENSER HEADERS AND CONNECTIONS	13-4-43	do.	do.	do.	DL	
	8-6-43					
" CONDENSER CASINGS	8-6-43	10 to 15 lb. □	30 lb. □	✓	DL	
" EVAPORATOR CASINGS	16-4-43	do.	do.	✓	DL	
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 *yes*
Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory
Dates of test *20-4-43* Density of Brine *1.020* 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
atmosphere *34.1* cooling water inlet and discharge *30.0* & gas in condensers *31.1* and evaporators *31.8*
the average temperature of the refrigerated chambers *34.1* and the rise of temperature in these chambers upon the expiration of *31.1* hours
time after the machinery and cooling appliances have been shut off *34.1*

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: 12 lubricator piston leathers, 1 set of 2 leather moulds, 1 C₂ stop valve spindle each size
12 lubricator gland leathers, 12 springs for comp^r valves, 1 steam piston rod + nuts
2 springs for water relief valve, 1 piston for H.P. cyl^r, 1 set steam piston rings H.P. + L.P. cyl^r
2 " " brine " " 1 H.P. steam piston valve, 1 eccentric sheave, strap + rod with brasses each pattern
2 " " C₂ safety valves, 2 bolts + nuts for conn. rod big end, 2 brass cased thermos
2 " " H.P. + L.P. steam cyl^r relief valves, 2 " " main bearing 2 for C₂ pipe flanges
1 pump for pressure lub^r 2 " " comp^r coupling 1-3/8" C₂ gauge valve, 3 spare pist
1 C₂ gauge, 1 hydrometer 2 " " crosshead 12 safety valve discs
for steam condensing sets: 6 condenser tubes, 24 ferrules with packing rings
1 pump piston rod for air pump, 1 set of valves for air pump, 1 set of valves for feed pump.
1 impeller and impeller shaft for brine and water pumps.
1 fitted box for comp^r spaces.

ELECTRICAL SPARES.
1 Armature } Fan Motors each size fitted
1 Set of field coils } 1 Complete motor packed for storage
1 Set of inter pole coils } Water Pump Motors 2 sets carbon brushes
1 Set of bearings } Prime Pump Motors 1 set controller spares
1 line of brush holders } 1 fan rotor for each size fitted
1 Set of carbon brushes
1 Set of controller spares

The foregoing is a correct description of the Refrigerating Machinery.

Robt. Ltd
DIRECTOR
Manufacturer.

DESCRIPTION OF INSULATION.

IN LOWER HOLD CHAMBERS.						IN 'TWEEN DECK CHAMBERS.				
	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of diato.	Inner Lining.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of diato.	Inner Lining.
FRAME No. (Fore Peak)	A									
FRAME No.	F									
FRAME No.	A									
FRAME No.	F									
FRAME No.	A									
FRAME No. (Boiler Room)	A									
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 DECK BOTTOM AND FACE
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 was constructed under special survey and the materials and workmanship are good and it will be eligible for the notation + Lloyds R.M.C (with date) when the installation and testing have been satisfactorily completed.

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours.	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	Cash	Chubb	J. E. Hall Ltd.	1943	143		12	423,250

Fee £36: 0: 0 Travelling Expenses £ : : Fee applied for, Received by me, 19

S. Gemmell.
Surveyor to Lloyd's Register.

Committee's Minute

TUES. 11 JAN 1944

Assigned.

see minute
on G.R. Rine 28. Apr 1946



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