

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

Date of writing Report

19

When handed in at Local Office

3/9/47

Port of *Barran*

No. in

Reg. Book.

Survey held at *Barran*.Date: First Survey *24/3/47*Last Survey *27/8*

1947

18679

(No. of Visits)

9

on the Refrigerating Machinery and Appliances of the

T.S.M.V. ACCRA

Tons

Gross *11599.8*
Net *644.8*Vessel built at *Barran*By whom built *Vickers-Armstrongs Ltd.* Yard No. *948*When built *1947*Owners *Elder Smith & Co. Ltd.*Port belonging to *Liverpool*Voyage *—*Refrigerating Machinery made by *J. & E. Hall Ltd*Machine Nos *12875*
*12876*When made *1946*Insulation fitted by *Vickers-Armstrongs Ltd*When fitted *1947*System of Refrigeration *carb. anhyd.*Method of cooling Cargo Chambers *Brine & air*Insulating Material used *slab cork*

Number of Cargo Chambers insulated

*3*Total refrigerated cargo capacity *12,800*

cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed *shaft tunnel*

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.

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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) ...						
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...	13/8/47	35 lb.	80 lb.	—	—	—

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 26th & 27th Aug. 1947 Density of Brine 24° by Twaddler hydrometer
Temperatures (when the cargo chambers are cooled down to the required test temperatures) 12.5° P. 7.5° S. & 4° S.
or, delivery and return air at direct expansion or brine cooled batteries & outflow and return brine -9° F. & -6° F.
atmosphere 78° F. cooling water inlet and discharge 66° F. & 69.6° F. gas in condensers 80° F. and evaporators -10° F.
the average temperature of the refrigerated chambers 7 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 15.1° F. (Day time test).

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:—

The foregoing is a correct description of the Refrigerating Machinery.

DESCRIPTION OF INSULATION.

BULKHEADS.

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.	A										
(Fore Peak)											
FRAME No.	F										
	A										
FRAME No.	F										
	A										
FRAME No.	F										
	A										
FRAME No.	F										
(Boiler Room)	A										
FRAME No. 76	A	—	—	slab cork	12"	5/8" Port. Cem. & Nat. Mat.					
(Engine Room)	F										
FRAME No. 68	A	—	—	do.	10"	do.					
Centre	F	—	—	do.	do.	do.					
FRAME No. 59	A	—	—	do.	do.	do.					
	F										
FRAME No.	A										
	F										
FRAME No.	A										
(After Peak)	F										
DES ...		—	—	do.	13"	do.					
VERHEADING ...		—	—	do.	do.	do.					
DOORS OF CHAMBERS ...		—	—	do.	8 1/2"	1/2" asphalt & Nat. Mat.					
BUNK HATCHWAYS ...											
THRUST RECESS, SIDES AND TOP ...											
TUNNEL SIDES AND TOP ...											
TUNNEL RECESS, FRONT AND TOP ...											

FRAMES OR REVERSE FRAMES, FACE *minimum 3" slab cork & 5/8 cement.*BULKHEAD STIFFENERS, TOP *do.* BOTTOM *do.* AND FACE *do.*RIBBAND ON TOP OF DECKS *—*SIDE STRINGERS, TOP *—* BOTTOM *—* AND FACE *—*WEB FRAMES, SIDES *—* AND FACE *—*BRACKETS, TOP *—* BOTTOM *—* AND FACE *—*INSULATED HATCHES, MAIN *9 3/4" 1/8" wood & 6" gas cork.* BILGE *—* MANHOLE *—*HATCHWAY COAMINGS, MAIN *1 3/8" by 3 1/2" to 6" Galv. steel fittings* BILGE *3" & 5/8 cement.*HOLD PILLARS *minimum 3" cork & 5/8 cement*MASTS *—* VENTILATORS *8" thick plugs & 6" slab cork*Are insulated plugs fitted to provide easy access to bilge suction roses *yes* tank, air, and sounding pipes *6" portable* heels of pillars *no*and manhole doors of tanks *none* 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 *—* 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 *clear of cargo chambers*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 *yes*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"x2" @ 15"* floors *3"x1" or 3"x1"* tunnel top *3"x1" or 3"x1"*~~fixed~~ portable *—* Are screens fitted over the brine grids at chamber sides *none* hinged or permanently fixed *—*Thermometer Tubes, No. and position in each chamber *3 tubes 2 (inboard); Centre 1 p. 41.9; Port 2 (inboard).*diameter *3"* 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*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 *part of shaft tunnel*brine return room *in shaft tunnel* fan room *—* water circulating pump room *in shaft tunnel*Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers *—*

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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 *yes*

How is the expanded metal secured in place *galv. nails & staples*

How are the cork slabs secured to the steel structure of the vessel *bitumen, galv. nails to grounds & cane screws.*

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the ~~approved plan~~ *specification* — *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" 1/2*. Minimum thickness *7. W. G.* Are they galvanised externally *yes*

How are they arranged in the chambers *in battens.*

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

FOR VICKERS-ARMSTRONGS LIMITED.

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

C. W. Moss
SHIPBUILDING MANAGER,
BARROW WORKS. Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery *5/3/46.* and Insulation *1/11/46.*
(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 machinery mentioned in London Report R.M.C. No 1725 and appliances have been fitted on board this vessel in accordance with the approved plans & specification, the Secretary's letters and the requirements of the Rules. Material & workmanship are good. The installation has been tried on board & the results were satisfactory.

The vessel is eligible for the

NOTATION * Lloyd's R.M.C. 9.47.

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

+ Lloyd's Rule 9.47 From 15.9.47

CERTIFICATE WRITTEN.

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	carb. Amby.	J. E. Hall, L.P.	1946	(1) Brine & air (2) Salt carb.	34.56	yes	3	12,800

Lon. G.O.O.

Fee *Guano 12.0.0.* £18 : 0 : 0 { Fee applied for, 19
Travelling Expenses £ : : { Received by me, 19

L. R. Horne
Surveyor to Lloyd's Register.

Committee's Minute *19 SEP 1947*

Assigned

+ Lloyd's R.M.C. 9.47



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