

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

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 (No. of Visits 12)

IN SUPPLEMENT.

on the Refrigerating Machinery and Appliances of the S.S. SHILLONG
 Vessel built at WALKER-ON-TYNE. By whom built VICKERS ARMSTRONGS L^{td} Yard No. 104 When built 1949
 Owners PENINSULAR & ORIENTAL STEAM NAV. CO. L^{td} Port belonging to LONDON Voyage ✓
 Refrigerating Machinery made by J. & E. HALL L^{td} DARTFORD Machine Nos. 13208 When made 1948
 Insulation fitted by NEWALLS INSULATION CO. L^{td} When fitted 1949 System of Refrigeration CARB. AMNH
 Method of cooling Cargo Chambers BRINE & AIR Insulating Material used GRANULATED & SLAB COCK
 Number of Cargo Chambers insulated 7 Total refrigerated cargo capacity 96310 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed MAIN DECK LEVEL PORT SIDE OF MAIN ENGINE ROOM.

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 87.8 Are all the units connected to all the refrigerated chambers YES

Compressors, driven direct or through single reduction gearing. Compressors, single or double acting SINGLE If multiple effect compression NO
 Are relief valves or safety discs fitted YES No. of cylinders to each unit 2 Diameter of cylinders 4"

Diameter of piston rod 1 3/4" Length of stroke 7" No. of revolutions per minute 425/280

Motive Power supplied from THREE EACH 350 KW DIESEL GENERATORS
 (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 DRIP PROOF OPEN TYPE No. of 2 Rated 115/75 HP Kilowatts 220

Volts at 425/280 revolutions per minute. Diameter of motor shafts at bearings 4"

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 COPPER (1) Cylindrical or rectangular CYLINDRICAL Are safety valves fitted ✓

Water Headers YES No. of coils in each ONE PER CASE Material of coils COPPER Can each coil be readily shut off or disconnected YES

Water Circulating Pumps, No. and size of pumps available 1 YET CENT how worked ELECTRICALLY Gas Separators, No. of TWO

Gas Evaporators, No. of 2 Cast iron or steel casings STEEL Pressure or gravity type PRESSURE If pressure type, are safety valves fitted YES

No. of coils in each casing 9 Material of coils STEEL Can each coil be readily shut off or disconnected YES

Direct Expansion or Brine Cooled Batteries, No. of 2 TWIN 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 TWIN 4 COILS Material of coils STEEL Can each coil be readily shut off or disconnected YES

disconnected YES Total cooling surface of battery coils 39000 sq ft Is a watertight tray fitted under each battery YES

Air Circulating Fans, Total No. of 6 each of 1-12 1/2 - 2900 cubic feet capacity, at 2630 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 THREE 3 YET 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 4 GR105 N1 SPECIAL CARGO CHAM 4 SECTIONS N4 SPECIAL CARGO CHAM 2 SECTIONS

Air Coolers ✓ N4 TWEEN DECK FOP 4 SECTIONS N2 3 N5 3

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

ENCLOSURE
 NOTE: THE WORDS WHICH DO NOT APPLY SHOULD BE DELETED.

Small 17-1 (MADE IN ENGLAND)



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005453-005461-0036 1/2

Are thermometers filled to the out^{let} 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 **✓**

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 **✓**

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	18.1.49 etc.	25 LBS/D	50 LBS/D	✓	✓	✓
BRINE PIPING AFTER ERECTION IN PLACE...						

SEE LONDON
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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 15th, 16th & 17th FEBRUARY 1949 Density of Brine 48 by TWADDELL 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

N^o 4 TWEEN DECK DEL: +6°F & +5½°F RETURN +9°F & +8½°F N^o LOWER HOLD DEL: +4°F & +4°F RETURN +9°F & +9½°F outflow and return brine 0°F & +2°F

atmosphere 49°F cooling water inlet and discharge 44°F & 47°F gas in condensers 54°F-56°F and evaporators -1°F & -5°F

the average temperature of the refrigerated chambers 8.6°F and the rise of temperature in these chambers upon the expiration of 24 hours

time after the machinery and cooling appliances have been shut off 12.8 DEGREES FAHRENHEIT.

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. ✓**

Additional Spare Gear Supplied:

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The foregoing is a correct description of the Refrigerating Machinery.



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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. 65 (Fore Peak)	A				GALV. SHEET W. G.					GALV. SHEET W. G.
FRAME No. 65 (ENG. ROOM)	F		(IN BRINE ROOM PORT)					GRAN. {	4"	12
	A							CORK. {	10"	16.
FRAME No. 62 (ENG. ROOM)	F	none	none	GRAN. CORK 10"	16"					
	A									
FRAME No. 56 (DIESEL OIL TANK COFFERDAM)	F	none	none	GRAN. CORK 10"	12.					
	A									
FRAME No. 56 (Boiler Room)	F							SLAB {	4"	12
	A							CORK {	4"	12
FRAME No. 46 1/2 (Engine Room)	F							SLAB {	4"	16.
	A							CORK {	4"	16.
FRAME No. 41 (P. & S.)	F					NONE	NONE	SLAB {	4"	16 P. 12 S.
	A							CORK {	4"	16.
FRAME No. 33/40 (FORE & AFT DIVISION ON E)	F							GRAN. {	4"	16.
	A							CORK {	8"	16.
FRAME No. 33 (After Peak)	F	NONE	NONE	GRAN. CORK 10"	12			CORK {	10"	12.
	A								11 1/2"	16.
HEADING ...		NONE	NONE	D ^o	12"				12"	14
S OF CHAMBERS ...		NONE	NONE	SLAB CORK 8"	2" ASPHALT.			SLAB CORK 2" 8" OVER E. 1 1/2" ASPHALT.		
HATCHWAYS ...								GRAN. CORK {	10"	12. 16.
RECESS, SIDES AND TOP ...								SLAB CORK 8"	2" ASPHALT.	
IL SIDES AND TOP ...								GRAN. {	10"	12.
IL RECESS, FRONT AND TOP ...								CORK {	11"	12.

1/2" THICK INODOROUS COMPOSITION (WALLES COVE) FITTED ON TOP OF DIESEL OIL TANK TOPS.

IES OR REVERSE FRAMES, FACE 4" x 3" VERTICAL WOOD GROUNDS.

HEAD STIFFENERS, TOP NO BKTS. BOTTOM NO BKTS. AND FACE 3" x 2" HORIZ. WOOD GROUNDS.

AND ON TOP OF DECKS NONE.

STRINGERS, TOP — BOTTOM — AND FACE —

FRAMES, SIDES — AND FACE —

KENTS, TOP — BOTTOM — AND FACE —

ATED HATCHES, MAIN 8" GRAN. CORK & 12 W. G. GALV. BILGE 6" GRAN. CORK & 12 W. G. GALV. MANHOLE 6" GRAN. CORK & 12 W. G. GALV.

HWAY COAMINGS, MAIN 5 1/2" x 3 1/2" BEVELLED PINE BILGE PINE. 10" x 5" TO 3" BEVELLED.

PILLARS 2" SLAB CORK & 12 W. G. GALV. SHEETING.

S — VENTILATORS "CARGOCAIRE" TRUNKS 8" GRAN. CORK & 14 W. G. GALV.

nsulated plugs fitted to provide easy access to bilge suction roses Yes. tank, air, and sounding pipes Yes. heels of pillars No

and manhole doors of tanks Yes. Are insulated plugs fitted to ventilators None. 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 3/8" thick galv. steel plates.

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.

and for draining the tank top None.

Fireproof Insulation. Is the insulation and woodwork fireproof in way of bunkers or any surfaces exposed to excessive heat None 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 Yes.

SCREEN AT E. R. BHD. 3" x 3" SP. 18" HOLD BHD. 2" x 2" SP. 18" floors None tunnel top 3" x 3" spaced 18"

Cargo Battens, Dimensions and spacing, sides TWEEN DECK, fixed or portable fixed. Are screens fitted over the brine grids at chamber sides Yes. hinged or permanently fixed fixed.

Thermometer Tubes, No. and position in each chamber "Malone" long distance thermometers, 4 in Hold + 2 in each of 6 'tween deck compartments 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 Scupper to bilges with liquid sealed traps + non-return flaps on lower ends.

Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off No. Scupper to E. R. Bilge.

What provision is made for draining the refrigerating machinery room Scupper to E. R. Bilge 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. No air spaces.

NO 4 FORD TWEEN DECK

No 44010
Sounding Pipes, No. and position in each chamber situated below the load water line
Diameter $2\frac{1}{2}$ to 3 in. Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 12
Are all wood linings tongued and grooved none Are cement facings reinforced with expanded steel lattice yes - "Surfastal"
How is the expanded metal secured in place "SURFASTAL" embedded in asphalt.
How are the cork slabs secured to the steel structure of the vessel set in bitumen
Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans yes.
Are they permanently fixed or collapsible, or portable Permanent.

Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors none Are the door frames efficiently insulated
Are insulated plugs supplied for the doorways Where are the doors worked from
Cooling Pipes in Chambers, diameter $1\frac{1}{4}$ " Minimum thickness 7 S.W.G. Are they galvanised externally yes.
How are they arranged in the chambers overhead, ends + sides of special cargo rooms 1, 2, 3, 4 + 5.

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers

STEAM THAWER.

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 YES.
Is the Refrigerating Machinery and Appliances duplicate of a previous case YES If so, state name of vessel S.S. SURAT NEWCASTLE
If the survey is not complete, state what arrangements have been made for its completion and what remains to be done COMPLETE. REPORT N° 105598

General Remarks (State quality of workmanship, opinions as to class, &c.) SEE LONDON REPORT RMC N° 2188.

The Refrigerating Machinery & Appliances have been satisfactorily installed on board, tested under working conditions and are eligible in our opinion for notation \pm LLOYDS RMC 2,49

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

+ LLOYDS RMC. 2.49

TRM 23.2.49

CERTIFICATE WRITTEN.
(dated 23.2.49)

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.						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.	System of (1) Refrigerating (2) Insulating the Chambers.			No.	Capacity. Cubic ft.
2	4	CARBON DIOXIDE	J. & E. HALL LTD. DARTFORD.	1949	(1) REFRIG. AIR (2) GRANULATED SLAB COOL.	87.8.	YES	7	96310

LONDON APR 13
Fee NEWCASTLE £30. 45: 0 : 0. Fee applied for, Not yet
Travelling Expenses £ : : Received by me, 19

FOR A.E. MONRO & SELF
J.A. ORR

G. CAMPBELL
Surveyor to Lloyd's Register.

FEB 25 FEB 1949

Committee's Minute

Assigned

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