

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

22 FEB 1949

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 No. in Reg. Book 95136 Survey held at NEWCASTLE-ON-TYNE Date: First Survey 6.9.48 Last Survey 2.2.1949
 (No. of Visits 12)

IN SUPPLEMENT.

on the Refrigerating Machinery and Appliances of the S.S. SHILLONG Tons { Gross.....
 Net.....
 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 EACH MACHINE
STANDBY PUMPS BILGE PUMPS SANITARY FIRE & BALLAST.

Gas Evaporators, No. of 2 Cast iron or steel casings STEEL Pressure or gravity type PRESSURE If pressure type, are safety valves fitted No
 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
7 TYPE 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
1-12 1/2 - 900 1-16 1/2 - 2000 2960 2630
 Air Circulating Fans, Total No. of 6 each of 1-17 1/2 - 2900 3-36 - 11,000 cubic feet capacity, at 2630 revolutions per minute ✓
1685

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 GR105 N1 SPECIAL CARGO CHAM 4 SECTIONS N4 SPECIAL CARGO CHAM 2 SECTIONS

AIR COOLERS { N4 BETWEEN DECK FOR 4 SECTIONS N2 N3 N5 } 3 3 3
N4 LOWER HOLD 8 SECTIONS 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.

ENCLOSURE

Small 97—E. (MADE IN ENGLAND.)



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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)						SEE LONDON RMC REPORT NO. 2188
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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
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 **YES.**

Dates of test 15th, 16th & 17th FEBRUARY 1949 Density of Brine 48 by TWADDEL 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:

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.

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. 65 (Fore Peak)	A				GALV. SHEET W.G.					GALV. SHEET W.G.
FRAME NO. 65 (ENG. ROOM)	F				(IN BRINE ROOM PORT)			GRAN. CORK.	4"	12
FRAME NO. 62 (ENG. ROOM)	A	none	none	GRAN. CORK	10"				10"	16.
FRAME NO. 56	F				(DIESEL OIL TANK COFFERDAM)					
FRAME NO. 56	A	none	none	GRAN. CORK.	10"					
FRAME NO. 56 (Boiler Room)	F							SLAB CORK	4"	12
FRAME NO. 56 (Boiler Room)	A				DIVISIONAL BHD. P. & S.				4"	12
FRAME NO. 46 1/2 (Engine Room)	A							SLAB CORK	4"	16.
FRAME NO. 46 1/2	F				DIVISIONAL BHD. STARBD.				4"	16.
FRAME NO. 41 P. & S.	A							SLAB CORK	4"	16.
FRAME NO. 41 P. & S.	F				DIVISIONAL BHD P. & S.				4"	16P. 12S.
FRAME NO. 33/40	A							SLAB CORK	4"	16.
FRAME NO. 33 (After Peak)	F	NONE	NONE	GRAN. CORK.	10"			GRAN. CORK	8"	16.
FRAME NO. 33	A	NONE	NONE	DO	14 1/2"				10"	12.
FRAME NO. 33	F	NONE	NONE	DO	12"				11 1/2"	16.
FRAME NO. 33	A	NONE	NONE	DO	12"				12"	14
FRAME NO. 33	F	NONE	NONE	SLAB CORK	8"	2" ASPHALT.		SLAB CORK	2" 8" OVER E.R.	1 1/2" ASPHALT.
FRAME NO. 33	A								10"	12. 16.
FRAME NO. 33	F								8"	2" ASPHALT.
FRAME NO. 33	A								10"	12.
FRAME NO. 33	F								11"	12.

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

HEADWAYS ... { P. & S. AND AFT. }
 RECESS, SIDES AND TOP (OVER DIESEL OIL TANK & COFFERDAM.)
 SIDES AND TOP ...
 RECESS, FRONT AND TOP ...

FRAMES 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 -
 KEYS, TOP - BOTTOM - AND FACE -

PLATED 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.
 HATCHWAY COAMINGS, MAIN 5 1/2" to 3 1/2" BEVELLED PINE BILGE PINE. 10" x 5" TO 3" BEVELLED.
 PILLARS 2" SLAB CORK & 12 W.G. GALV. SHEETING.
 VENTILATORS "CARGOCAIRE" TRUNKS 8" GRAN. CORK & 14 W.G. GALV.
 Insulated 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 BHDS. 2" x 2" SP. 18" floors None tunnel top 3" x 3" spaced 18"
 Cargo Battens, Dimensions and spacing, 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.
 What provision is made for draining the refrigerating machinery room Scupper to E.R. Bilge.
 brine return 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 *at apex end of P. & S. tubes + two P. S. sides of shaft tunnel above tank top insulation.*
 Diameter *1 1/2" to 2" in diameter* Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 12 *yes.*
 Are all wood linings tongued and grooved *none* Are ~~concrete~~ *ASPHALT* 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 *see in bilge*
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 1/4"* Minimum thickness *7 S.W.G.* Are they galvanised externally *yes.*
 How are they arranged in the chambers *between deck overhead, ends + sides of special cargo rooms* *yes 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 *yes.* 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 REPORT # 105598*
 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.) *SEE LONDON REPORT RMC # 2188.*

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

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

+ LLOYDS R.M.C. 2.49

TRM 23.2.49

CERTIFICATE WRITTEN. (dated 23.2.49)

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	4	CARB. ANHY.	J. & E. HALL L ^{td} DARTFORD.	1949	(1) REINE & AIR (2) GRANULATED SLAB COOL.	Tons. 87.8.	YES	7	96310

LONDON A/C £15
 Fee *Newcastle £30* £45: 0 : 0. (Fee applied for, Not yet received by me, 19)

FOR A.E. MONRO & SELF
J. A. Orde
 Surveyor to Lloyd's Register.

FEB 25 FEB 1949

Committee's Minute
 Assigned *+ Lloyds RMC 2.49*

Certificate to be sent to NEWCASTLE OFFICE. BY RETURN OF POST IF POSSIBLE.



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