

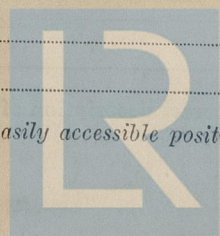
Report on Refrigerating Machinery and Appliances.

15 OCT 1957

Date of writing Report 31st Aug. 1957 When handed in at Local Office 19 Port of Shimonoseki
 No. in Reg. Book. Survey held at Nagasaki Date: First Survey 31-5-1957 Last Survey 27th July, 1957
 (Number of Visits 12)
 Refrigerated Cargo Installation on the M.V. "KOSEI MARU" Tons Gross 9202 Net 5353
 Vessel built at Nagasaki By whom built Mitsubishi Zosen K.K. Yard No. 1485 When built 1957-7
 Owners Daido Kaiun K.K. Port belonging to Kobe Voyage International
 Refrigerating Machinery made by Sabroe Co. of Japan Ltd. Machine Nos 330062 When made 1957-7
 Insulation fitted by Mitsubishi Zosen K.K. When fitted 1957-7 System of Refrigeration Dechloro-
difluoro-
Methane
 Method of cooling Cargo Chambers Direct expansion & Air Insulating Material used Glass Wool
 Number of Cargo Chambers insulated 4 Total refrigerated cargo capacity 11,260 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed on 3rd deck of mach. space, star'd. fwd.Refrigerating Units, No. of 3 No. of machines 3 Is each machine independent YesTotal refrigerating ice-melting capacity in tons per 24 hours 34.5 Are all the units connected to all the refrigerated chambers YesCompressors, driven direct or through pulley & belts Compressors, single or double acting Yes If multiple effect compression YesAre relief valves or safety discs fitted Yes No. of cylinders to each unit 2 LP & 1 HP Diameter of cylinders 150 m.m.Diameter of piston rod - Length of stroke 125 m.m. No. of revolutions per minute 500/250Motive Power supplied from 3 Electric 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: 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 Semi-enclosed, drip proof No. of 3 Rated 30/15 H.P. XXXXXX A.C. 440 Voltsat 1800/900 revolutions per minute. Diameter of motor shafts at bearings 65 m.m.Reduction Gearing pulley & belt Motor pulley 229mm Pitch circle diameter, XXXXXX Main wheel 784m.m. No. of belt 4Distance 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 90 m.m.Gas Condensers, No. of 3 Cast iron or steel casings - Cylindrical or rectangular Cylindrical Are safety valves fittedto casings Yes tubes 158 (Working 2, 178 (standby 1) tubes XXXXXX Can each coil be readily shut off or disconnected -Water Circulating Pumps, No. and size of pumps available - how worked Electric Motor Gas Separators, No. of 3HP & 3LPGas Evaporators, No. of - Cast iron or steel casings - Pressure or gravity type - If pressure type, are safetyvalves fitted - No. of coils in each casing - Material of coils - Can each coil be readily shut off or disconnected -Direct Expansion XXXXXX Batteries, No. of 8 Are there two separate systems, so that one may be in use while the other is beingcleared of snow Yes No. of coils in each battery 4 Material of coils Steel Tube Can each coil be readily shut off ordisconnected No Total cooling surface of battery coils 294 M² Is a watertight tray fitted under each battery YesAir Circulating Fans, Total No. of 4 each of 95/75 cubic feet capacity, at 1800/1200 revolutions per minuteSteam or electrically driven Electrically Where spare fans are supplied are these fitted in position ready for coupling up YesBrine Circulating Pumps, No. and size of, including the additional pump - how worked -Brine Cooling System XXXXXX 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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HYDRAULIC AND OTHER TESTS.						
DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
Engine Cylinders (if tested)	-	-	-	-	-	-
Gas Compressors	22-12-56	-	350 LBS	200 LBS	MM	Tested by Kobe Surveyors.
„ Separators	17-12-56	-	350 LBS	200 LBS	MS	Ditto
„ Multiple Effect Receivers	17-12-56	-	350 LBS	200 LBS	MS	Ditto
„ Condenser Coils	-	-	-	-	-	Tested by Kobe Surveyors.
Air Coolers	15-2-57	-	350 LBS	200 LBS	YK	Tested by Kobe Surveyors.
„ Evaporator Coils	-	-	-	-	-	-
„ Condenser Headers and Connections & Tubes	17-12-56	-	350 LBS	200 LBS	MS	Tested by Kobe Surveyors.
„ Condenser Casings	-	-	-	-	-	-
„ Evaporator Casings	-	-	-	-	-	-
NH ₃ Condenser, Evaporator and Air Cooler Coils after erection in place	-	-	-	-	-	-
Brine Piping after erection in place...	-	-	-	-	-	-

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:—..... -

The foregoing is a correct description of the Refrigerating Machinery.

Manufactur

	IN LOWER HOLD CHAMBERS.					IN 'TWEEN DECK CHAMBERS.				
BULKHEADS.	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						-	-	-	-	-
120 { Frame No..... F (Fwd end p & s) { A						-	-	glass wool	10"	timber
101½ { Frame No..... F (Chamber division) { A						-	-	glass wool	5"	timber
94 { Frame No..... F (Biller Room) { A						-	-	glass wool	5"	timber
{ Frame No..... F (Engine Room) { A						-	-	galv. steel sheet	11"	timber
{ Frame No..... F (After Peak) { A						-	-	timber	2"	steel sheet
Sides						56mm	timber	glass wool	10"	timber
Overheading						103mm	timber	glass wool	✓ 9"	timber
Floors of Chambers						-	-	glass wool	✓ 10"	Notex on timber
Trunk Hatchways and in way of passage between aft chambers						-	-	glass wool	✓ 10"	timber
Thrust Recess, Sides and Top										
Tunnel Sides and Top										
Tunnel Recess, Front and Top										

4" glass wool

Frames or Reverse Frames, Face	Deck beam face	Bottom	and Face	4" glass wool
Bulkhead Stiffeners, Top	Bottom	and Face	5" glass wool	
Ribband on Top of Decks	Long girder face and side	Bottom	and Face	3" glass wool
Side Stringers, Top	Bottom	and Face	3" glass wool	
Web Frames, Sides	Bottom	and Face	3" glass wool	
Brackets, Top	Bottom	Manhole		
Insulated Hatches, Main	Bilge			
Hatchway Coamings, Main	Bilge			
Hold Pillars	Ventilators			
Masts				
Are insulated plugs fitted to provide easy access to bilge suction roses tank, air, and sounding pipes heels of pillars				
are 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 Yes				
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 50 x 50/300 mm floors 25x75/100 on tunnel top - fixed or portable sides fixed 50x50/250mm hinged or permanently fixed -				
Thermometer Tubes, No. and position in each chamber 1 and position as per approved plan No.P. 508 approved date diameter 2½" 25-3-57 Kobe 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 in each chamber				
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 3 x 50mm scupper pipes to mach. space bilge pumps placed on lower brine return room fan room lx3" scupper pipe with liquid sealed trap floor in mach. space				
All air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers yes, to hold bilge				

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..... Yes 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..... Yes

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans.....

Are they permanently fixed or collapsible, or portable..... Permanently fixed

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.....

The refreshing air trunkways fitted with valves at water tight bulkheads.....

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.

S. Koga
 NAGASAKI WORKS
 MITSUBISHI SHIPBUILDING & ENGINEERING CO. LTD. Builders.
 For Sabroe Co. of Japan Ltd.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery..... 2-4-56 and Insulation.....

Is the Refrigerating Machinery and Appliances duplicate of a previous case..... Yes If so, state name of vessel..... M.V. "KOSOH MARU"

If the survey is not complete, state what arrangements have been made for its completion and what remains to be done..... Complete

Water Defrosting System:- Salt water defrosting system, a portable hose connection has been made between sanitary tanks and defrost line on compass bridge deck and a notice board has been fitted stating that this connection is only to be placed during the actual defrosting operation. Other notice board has been fitted in Refrigerating Machinery Room stating that during defrosting the bilge pumps are to be started on No.3 hold bilge wells.

Air cooler fan output

General Remarks (State quality of workmanship, opinions as to class, &c.).....

The Refrigerated Cargo Installations of this ship have been constructed under special survey in accordance with the requirements of the Rules, the approved plans and the Secretary's letters. The materials and workmanship are sound and good.

On completion of installation on board, the refrigeration test was carried out with satisfactory results. The air cooler defrosting arrangement was examined, tested and found in good order.

It is submitted that the Refrigerated Cargo Installations of this ship are eligible to have the class notation of + Lloyd's RMC to maintain temp. 0°F. with sea temp. 90°F. max. + 7/57.

For the report on survey of the Refrigerating Plant during construction in the shops, please see Kobe Surveyors certificates Nos.M-36670, M-36970, M-37308, M-38328 & M-38743 and Nagasaki Surveyors certificate No.M-3205, copy of each attached herewith.

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.
3	3	Dechloro-defluoro-methane	Sabroe Co. of Japan Ltd.	1957-7	(1) Direct Expansion & Air (2) Glass wool	41.55	Yes	4	11,260

Installation/Insulation Fee £50,200 : Fee applied for, SEP 30 1957
 Travelling Expenses £ : Received by me, LOCALLY

[Signature]
 Surveyor to Lloyd's Register.

Committee's Minute..... TUESDAY 12 NOV 1957

Assigned..... + Lloyd's Rmc. 7.57

"to maintain temp. 0°F with sea temp. 90°F maximum."

CERTIFICATE WRITTEN



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