

Report on Refrigerating Machinery and Appliances.

Received at London Office

Date of writing Report 19... When handed in at Local Office 19... Port of Shimonoseki

No. in Reg. Book. Survey held at Otsuka & Nagasaki Date: First Survey 9-4-56 Last Survey 5-6-1956
36405 (Number of Visits 10)

on the Refrigerating Machinery and Appliances of the M.T. "KOSOH MARU" Tons (Gross 9204.74 Net 5349.95)

Vessel built at Nagasaki, Japan By whom built Mitsubishi Zosen K.K. Yard No. 1465 When built 6-1956

Owners Daido Kaisha K.K. Port belonging to Kobe Voyage International

Refrigerating Machinery made by Sabroe Co. of Japan Ltd Machine Nos. 330041, 330042, 330043 When made 12-1955

Insulation fitted by Mitsubishi Zosen K.K. When fitted 6-1956 System of Refrigeration Bichloro-difluoro-methane

Method of cooling Cargo Chambers Direct expansion and Air Insulating Material used Glass wool

Number of Cargo Chambers insulated 4 Total refrigerated cargo capacity 11,600 cubic feet

DESCRIPTION OF REFRIGERATING MACHINERY. Where placed on 3rd deck of Tricky space, starboard fwd.

Refrigerating Units, No. of 3 No. of machines 3 Is each machine independent Yes

Total refrigeration or ice-melting capacity in tons per 24 hours 34.5 Are all the units connected to all the refrigerated chambers Yes

Compressors, driven direct or through single pulley and belt reduction gearing. Compressors, single or double acting Single If multiple effect compression Yes

Are relief valves or safety discs fitted Yes No. of cylinders to each unit 2 L.P. & 1 H.P. Diameter of cylinders 150 mm

Diameter of piston rod - Length of stroke 125 mm No. of revolutions per minute 500/250

Motive 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 Strip-proof No. of 3 Rated 30/15 H.P. Kilowatts 440 A.C. Volts

at 1750/880 revolutions per minute. Diameter of motor shafts at bearings 65 mm

Reduction Gearing Pulley and belt Pitch circle diameter, pinion 229 mm Main wheel 784 mm No. of belts 4

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 75 mm

Gas Condensers, No. of 3 Cast iron or steel casings Steel Cylindrical or rectangular Cylindrical Are safety valves fitted

to casings Yes No. of tubes 158 (working 2) Material of tubes Alumi brass Can each coil be readily shut off or disconnected -

Water Circulating Pumps, No. and size of pumps available 2 at 32 t/h how worked Electric motors Gas Separators, No. of 3 H.P. 3 L.P.

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 4 Are there two separate systems, so that one may be in use while the other is being

cleared of snow Yes No. of coils in each battery 3 x 2 Material of coils Steel Can each coil be readily shut off or

disconnected No Total cooling surface of battery coils 252.8 m² Is a watertight tray fitted under each battery Yes

Air Circulating Fans, Total No. of 4 Impellers each of 95 cubic feet capacity, at 1730 revolutions per minute

Steam or electrically driven Electrically Where spare fans are supplied are these fitted in position ready for coupling up Yes

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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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. —
Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans. *Yes*
 Are they permanently fixed or collapsible, or portable. *Permanently fixed.*
 Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors. *none fitted* 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 watertight 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
 BUILDERS.
 NAGASAKI WORKS

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

Water Defrosting System: — In salt water defrosting system a portable hose connection has been made between sanitary tank 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 machine room stating that during defrosting the bridge pumps are to be started on No. 3 hold bridge wells.

Air cooler fan outputs: —

	static pressure mm. water	43.5	44	43	39
air vol. m. per min.	103.6	120.89	111.75	113.4	
fan speed r.p.m.	1785	1790	1790	1780	
water capacity (A.C. 420V)	2.5A	2.3A	2.2A	2.35A	
	P. fwd.	P. aft.	S. fwd.	S. aft.	

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 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 \pm Lloyd's RMC to maintain temp. 0°F. with sea temp. 90°F. max. \pm 6/56.

For the report on survey of the Refrigerating Plant during construction in the shops, see Kobe Surveyor's certificates Nos. M-28883, M-28610, M-32617, M-29042, M-29147 and P-30237, 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	Dichloro-difluoro-methane	Sabroe Co. of Japan	1956	(1) Dried Expansion & air (2) glass wool	Tons. 34.5	Yes.	4	Cubic ft. 116.00

Fee ¥52,250 (Kobe) 8/6/56
 ¥50,200 : Fee applied for, 19.
 Travelling Expenses £ : Received by me, 19.

P. Murao *Peter Morrison*
 Surveyor to Lloyd's Register.

Committee's Minute *MUNDAY 28 AUG 1956*

Assigned *+ Lloyd's RMC 6.56*
 to maintain temp 0°F with sea temp 90°F max.



CERTIFICATE WRITTEN
 Certificate to be sent to
write S.K.