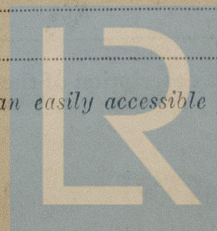


Report on Refrigerating Machinery and Appliances.

Received at London Office.

Date of writing Report 21st October 1951 When handed in at Local Office 19 Port of KobeNo. in Reg. Book. Survey held at Tamano, Japan Date: First Survey 28th May 1951 Last Survey 27th September 1951
(Number of Visits)on the Refrigerating Machinery and Appliances of the Motor Ship "AKAGISAN MARU" Tons Gross 6637.03 Net 3735.62Vessel built at Tamano, Japan By whom built Mitsui Shipbuilding & Engineering Co., Ltd. Yard No. 563 When built 9. 1951Owners Mitsui Senpaku K. K. Port belonging to Tokyo Voyage New YorkRefrigerating Machinery made by Nippon Salvor Co., of Japan Machine Nos. 601, 602 When made 8. 1951Insulation fitted by Mitsui Shipbuilding & Eng. Co. Ltd. Tamano Works When fitted 9. 1951 System of Refrigeration CO₂ gas directMethod of cooling Cargo Chambers Brine Insulating Material used Cork boardNumber of Cargo Chambers insulated 3 Total refrigerated cargo capacity 8,050 cubic feetDESCRIPTION OF REFRIGERATING MACHINERY. Where placed Port, 2nd Deck Fr. No. 89-96Refrigerating Units, No. of 2 No. of machines 2 Is each machine independent yesTotal refrigeration or ice-melting capacity in tons per 24 hours 5.5 Ton x 2 Are all the units connected to all the refrigerated chambers yesCompressors, driven direct or through single reduction gearing. Compressors, single or double acting Double two stage If multiple effect compression yesAre relief valves or safety discs fitted yes No. of cylinders to each unit 1 Diameter of cylinders 60 mmDiameter of piston rod 30 mm Length of stroke 140 mm No. of revolutions per minute 400Motive Power supplied from 3. Electric main 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 Self ventilated, drip proof semi-enclosed type No. of 2 Rated continuous Kilowatts 1.5 Voltsat 220, 400 revolutions per minute. Diameter of motor shafts at bearings 70 mmReduction 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 steel Cylindrical or rectangular cylindrical Are safety valves fittedto casings yes No. of coils in each 2 Material of coils Copper Can each coil be readily shut off or disconnected NoWater Circulating Pumps, No. and size of pumps available 2, 3 H.P. how worked Directly coupled Gas Separators, No. of 4Gas Evaporators, No. of 2 Cast iron or steel casings Steel Pressure or gravity type Pressure If pressure type, are safetyvalves fitted yes No. of coils in each casing 3 Material of coils O.H. steel Can each coil be readily shut off or disconnected NoDirect Expansion or Brine Cooled Batteries, No. of — Are there two separate systems, so that one may be in use while the other is beingcleared of snow — No. of coils in each battery — Material of coils — Can each coil be readily shut off ordisconnected — 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 minuteSteam 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 2, 5 H.P. how worked Directly coupledBrine Cooling System, closed or open Open Are the pipes and tanks galvanised on the inside NoNo. of brine sections in each chamber 2Can 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.



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01536-01543-01204

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
Engine Cylinders (if tested)						
Gas Compressors	- - -51	90 kg/cm ²	211 kg/cm ²	195.5 kg/cm ²	✓ JNR	
„ Separators	5-6-51	„	3000 LBS./in ²	✓ 1500 LBS./in ²	✓ JNR	
„ Multiple Effect Receivers	5-6-51	„	„	✓ „	✓ JNR	
Condenser Coils	13-8-51	„	„	✓ „	✓ MMR	
„ Evaporator Coils	5-6-51	„	„	✓ „	✓ JNR	
„ Condenser Headers and Connections	5-6-51	„	„	✓ „	✓ JNR	
„ Condenser Casings	5-6-51	1 kg/cm ²	50 LBS./in ²	✓	✓ JNR	
„ Evaporator Casings	5-6-51	„	„		—	
H ₂ Condenser, Evaporator and Air Cooler Coils after erection in place						
rine Piping after erection in place...	23-9-51	1 kg/cm ²		✓	✓ MMR	

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. For Sabroe Co. of Japan, Limited
- Y. Tanomura Manufacturer.

IN LOWER HOLD 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..... (Fore Peak)	A									
Frame No.....	F									
Frame No.....	A									
Frame No.....	F									
Frame No.....	A									
Frame No.....	F									
Frame No..... (Boiler Room)	A									
Frame No.....	A									
Frame No..... (Engine Room)	A									
Frame No. 96	F					4"	Soft wood Larger paper	Cork board	✓ 9"	Soft wood Larger paper galvanized
Frame No. 102	A					-	-	-	-	-
Frame No. 102	F					-	-	-	-	-
Frame No. 102	A					4	Soft wood Larger paper	Cork board	✓ 9"	Soft wood Larger paper galvanized
Frame No. 106	F					-	-	-	-	-
Frame No. 106	A					3 1/2"	Soft wood Larger paper	Cork board	✓ 9"	Soft wood Larger paper galvanized
Frame No..... (After Peak)	F					-	-	-	-	-
Sides						2 5/8"	Soft wood Larger paper	Cork board	✓ 9"	Soft wood Larger paper galvanized
Overheading						"	"	"	"	"
Floors of Chambers						1 1/4"	"	"	✓ "	"

Frames or Reverse Frames, Face.....—

Bulkhead Stiffeners, Top..... Bottom..... and Face.....

Ribband on Top of Decks.....

Side Stringers, Top..... — Bottom..... — and Face..... —

Web Frames, Sides..... and Face.....

Brackets, Top Bottom and Face

Insulated Hatches, Main..... Bilge..... Manhole.....

Hatchway Coamings, Main Bilge

Hold Pillars.....

Masts.....	Ventilators.....
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
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100	100

Are insulated plugs fitted to provide easy access to bilge suction roses..... — .. tank, air, and sounding pipes..... — .. heels of pillars..... — ..

and manhole doors of tanks..... Are insulated plugs fitted to ventilators..... yes ✓ cargo ports..... yes ✓ 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

Cargo Bottoms: Diagonal bracing 3 1/2" x 3 1/2" 2' x 2' 1/2" 16" x 1 1/2" 2' x 2' 1/2"

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Thermometer Tubes. No. and position in each chamber 1 in each chamber 1 in each chamber (tubes run to Sh. 15. DK.)

diameter..... 3" ✓

Protection of Pipes. Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated. —

Draining Arrangements. What provision is made for draining the inside of the chambers. 1 1/2" copper pipe

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. 2" Copper pipe at the corner of the room.

brine return room..... 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.....yes

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..... *nailed to the wood linings which are secured to steel structure*
Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans.....
Are they permanently fixed or collapsible, or portable.....

Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors..... Are the door frames efficiently insulated..... *yes*
Are insulated plugs supplied for the doorways..... *N.O.* Where are the doors worked from..... *N.O. 3 Lower tween D.K.*
Cooling Pipes in Chambers, diameter..... *48.6 mm* Minimum thickness..... *4 mm* Are they galvanised externally..... *yes*
How are they arranged in the chambers..... *on the ceiling and side walls by means of hanging bolts and*
coach screw which contact to the ship structure
Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers..... *flat brine*

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

MITSUBI SHIPBUILDING & ENGINEERING CO., LTD., TAMANO WORKS.

S. Tanaka
Senior Managing Director.

Builders.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery..... *8-10-51* and Insulation..... *8-10-51*
(If not, state date of approval)
Is the Refrigerating Machinery and Appliances duplicate of a previous case..... *N.O.* 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 Refrigerating Installation of this vessel has been constructed under Special Survey in accordance with the Rules, approved plans and Secretary's letters.

The materials and workmanship are sound and good.

The Refrigerating Installation has been examined under working condition and found satisfactory.

In our opinion the Refrigerating Installation of this vessel is worthy to have a record of \pm R.M.C 9-51.

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.
<i>2</i>	<i>2</i>	<i>CO₂</i>	<i>Nippon Sabroe Co. of Japan</i>	<i>27-9-51</i>	<i>(1) CO₂ & Brine</i>	<i>5.5 x 2</i>	<i>yes</i>	<i>(2)</i>	<i>8.050</i>
		<i>Colum</i>			<i>(2) Cork board</i>	<i>11</i>			

Fee £ : : Fee applied for, 19
Travelling Expenses £ : : Received by me, 19

Surveyor to Lloyd's Register.

Committee's Minute..... *TUES. 22 JAN 1952*

Assigned.....

+ Lloyd's RMC 9.51
to maintain temp. 10° F. with
sea temp. 90° F. max.

CERTIFICATE WRITTEN.



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