

# REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office 16 MAY 1926 - 8 MAY 1926)

Date of writing Report 16 MAY 1926 When handed in at Local Office 16 MAY 1926 Port of London

No. in Reg. Book. Survey held at 41102 Derby and Hong Kong Date: First Survey 11 February 1925 Last Survey 4 May 1925  
17th June 1925 (No. of Visits 15th Jan. 1926 5 and 11)

on the Refrigerating Machinery and Appliances of the S.S. TAIPING Tons {Gross 4323.75 Net 2582.18

Vessel built at Hong Kong By whom built The Hong Kong & Whampoa Dock Co. Yard No. 619 When built 1925-1926

Owners G. S. Guill + Co. Sydney Port belonging to Hong Kong Voyage Australia

Refrigerating Machinery made by Haslam Foundry + Engineering Machine No. 3 When made 1925-1926

Installation fitted by Hongkong + Whampoa Dock Co. When fitted 1925-1926 System of Refrigeration Ammonia + Brine.

Method of cooling Cargo Chambers Brine Piping Insulating Material used Granulated Cork.

Number of Cargo Chambers insulated 8 Total refrigerated cargo capacity 49,005 cubic feet.

## DESCRIPTION OF REFRIGERATING MACHINERY. Where placed Upper Deck, Forward.

Refrigerating Units, No. of 1 Single, double, or triple Double Cubic feet of air delivered per hour ✓

Total refrigeration or ice-melting capacity in tons per 24 hours 30 Are all the units connected to all the refrigerated chambers yes.

Compressors, driven direct or through ~~single~~ reduction gearing. Compressors, single or double acting Double ✓ No. of cylinders 2 ✓

Diameter of cylinders 8" ✓ Diameter of piston rod 2" ✓ Length of stroke 12" ✓ No. of strokes per minute 200 ✓

Motive Power supplied from Direct acting Steam engine.

Steam Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders 2 Diameter 9" + 14"

Length of stroke 12" Working pressure 180 lb. sq. in. Diameter of crank shaft journals and pins 4 1/2" + 4"

Width and thickness of crank webs 5 1/2" x 3" No. of sections in crank shaft 2 Revolutions of engines per minute 100

Oil Engines, type 2 or 4 stroke cycle Single or double acting

No. of cylinders Diameter Length of stroke Span of bearings as per Rule

Maximum pressure in cylinders Diameter of crank shaft journals and pins

Width and thickness of crank webs No. of sections in crank shaft Revolutions of engine per minute

Electric Motors, type No. of Rated Kilowatts

Volts at revolutions per minute. Diameter of motor shafts at bearings

Reduction Gearing, maximum shaft horse power at 1st pinion Revolutions per minute at full power at 1st pinion

1st pinion 1st reduction wheel main shaft Pitch circle diameter, 1st pinion 2nd pinion

2nd reduction wheel Main wheel Width of face, 1st reduction wheel Main wheel

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, 1st pinion 2nd pinion

1st reduction wheel Main wheel Flexible pinion shafts, diameter 1st 2nd

Pinion shafts, diameter at bearings, External, 1st 2nd Internal, 1st 2nd

Diameter at bottom of teeth of pinion, 1st 2nd Wheel shafts, diameter at bearings, 1st

Main Diameter at wheel shroud, 1st Main

Gas Condensers, No. of 2 Cast iron casings in machine base Cylindrical or rectangular rectangular

No. of coils in each 2 Material of coils S.D. Steel Can each coil be readily shut off or disconnected no

Water Circulating Pumps, No. and size of 1 - 4 1/2" x 9" x 12" how worked Direct acting Steam Gas Separators, No. of 2

Gas Evaporators, No. of 2 Cast iron or steel casings Steel Pressure or gravity type Gravity.

No. of coils in each casing 5 Material of coils S.D. Steel Can each coil be readily shut off or disconnected no.

Direct Expansion or Brine Cooled Batteries, No. of Are there two separate systems, so that one may be in use while the other is being

cleared of snow No. of coils in each battery Material of coils Can each coil be readily shut off or

disconnected 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 minute

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

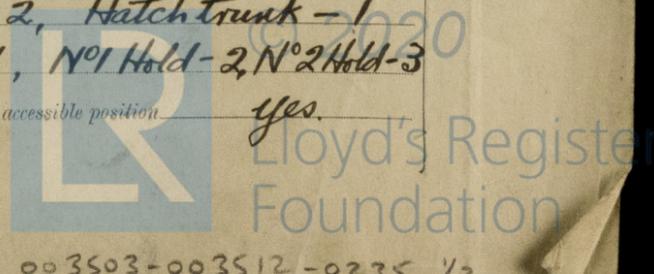
Brine Circulating Pumps, No. and size of, including the additional pump 2 - 6" x 6 1/2" x 6" how worked Direct acting Steam.

Brine Cooling System, closed or open Closed. Are the pipes and tanks galvanised on the inside no.

No. of brine sections in each chamber N°1 T.D. port - 2, N°1 T.D. Starb - 2, Hatch trunk - 1

N°3 T.D. port - 2, N°3 T.D. Starb - 2, N°3 T.D. Fore - 1, N°1 Hold - 2, N°2 Hold - 3

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



Are thermometers fitted to the outflow and to each return brine pipe Yes Where the tanks are closed are they ventilated as per Rule

Where the tanks are not closed is the compartment in which they are situated efficiently ventilated

Steam Condensing Plant. State what provision is made for condensing steam, in terms of Section 4, Clauses 13 and 14.

Independent Steam Condenser - 200 sq. feet Surface.

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED)	20.3.25	H.P. 180 lb	350 lb.		J.S.G.	
	10.3.25	L.P. 120 lb	250 lb.		J.S.G.	
GAS COMPRESSORS	20.3.25	200 lb	500 lb.		J.S.G.	
	26.3.25	200 lb.	500 lb.		J.S.G.	
SEPARATORS						
CONDENSER COILS	10.3.25	200 lb	1500 lb.	500 lb.	J.S.G.	
	11.2.25	200 lb.	1500 lb.	500 lb.	J.S.G.	
EVAPORATOR COILS	10.3.25				J.S.G.	
	11.2.25	15 lb.	1500 lb.		J.S.G.	
CONDENSER HEADERS AND CONNECTIONS						
CONDENSER CASINGS	26.3.25	5 lb	15 lb		J.S.G.	
	20.3.25	5 lb	15 lb.		J.S.G.	
EVAPORATOR CASINGS	4.5.25	Gravity	50 lb.		D.G.	
NH <sub>3</sub> CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE	11-12-25			250 lb.	T.S.M.	
BRINE PIPING AFTER ERECTION IN PLACE.	13-1-26					
	3-1-26	10 to 15 lb.	50 lb.	90 lb.	T.S.M.	

Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory Yes  
 Dates of test January 15<sup>th</sup> & 16<sup>th</sup> 1926 Density of Brine 40 by Twaddell hydrometer

Temperatures (when the cargo chambers are cooled down to the required test temperatures) of air at the snow box and of the return air - & -  
 or, delivery and return air at direct expansion or brine cooled batteries - & -, outflow and return brine 0° F. & 3° F.  
 atmosphere 78° F. cooling water inlet and discharge 66° F. & 78° F. gas in condensers 75° F. (135) and evaporators 0° F. (15)  
 the average temperature of the refrigerated chambers 14° F. and the rise of temperature in these chambers upon the expiration of 12 hours  
 time after the machinery and cooling appliances have been shut off 12° F. average rise in temperature.

SPARE GEAR.

ARTICLES SUPPLIED AS PER RULE.	ADDITIONAL SPARE GEAR SUPPLIED.
1 Crankshaft.	3 lengths each of 1 1/2" x 1 1/4" W.I. piping
1 Steam piston rod + nut	3 each 1 1/2" x 1 1/4" W.I. bends.
1 H.P. Piston with rings	12 each 1 1/2" x 1 1/4" sockets + backnuts
1 Set rings for each Steam Cylinder	1 Set ratchet screwing dies 1 1/2" x 1 1/4"
1 Compressor piston rod + nut.	1 Set joint rings
1 Air pump bucket + rod.	assorted bolts + nuts.
1 Circulating pump bucket + rod.	1 fitted box for rod, valves etc.
1 H.P. cylinder slide valve.	1 gas regulating valve complete.
1 H.P. valve spindle	Sundry cocks, valves + flanges.
1 Eccentric sheave, strap + rod for each pattern used.	1 set compressor gland packing
	1 patent hatch grid cock.
1 Cover for each end of Compressor	
2 Main bearing bolts.	
1/2 set Connecting rod bolts	
1/2 set piston rod bolts.	
4 Compressor delivery valves, seats + Springs	
4 Compressor suction valves seats + Springs	
1 Set valves for air feed, circulating and brine pumps.	
6 tubes + 24 ferrules for Steam Condenser	

ARTICLES REQUIRED BY RULES AND NOT YET SUPPLIED

The foregoing is a correct description of the Refrigerating Machinery.

ASLAM FOUNDRY & ENGINEERING CO. LIMITED  
 A. V. Hough Manufacturer.  
 BOMBAY

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. 153 (Fore Peak)	A	-	Gran. Cork	10"	2-1" T+G.	Frame No. 149	-	Gran. Cork	10"	2-1" T+G.
FRAME No. 137	F	-	" "	3"	2-1" T+G.	Intermediate Bulkheads	-	" "	8"	2-1" T+G.
	A	-	" "	9"	2-1" T+G.		-	" "	8"	2-1" T+G.
FRAME No. 121	F	-	" "	12"	2-1" T+G.	-	-	" "	10"	2-1" T+G.
	A	-	" "	"	"		-	" "	"	"
FRAME No. -	F	-	" "	"	"	-	-	" "	"	"
	A	-	" "	"	"		-	" "	"	"
FRAME No. - (Boiler Room)	F	-	" "	"	"	-	-	" "	"	"
	A	-	" "	"	"		-	" "	"	"
FRAME No. 59 (Engine Room)	A	-	" "	"	"	-	-	Gran. Cork	10"	2-1" T+G.
	F	-	" "	"	"		-	" "	"	10"
FRAME No. 34	F	-	" "	"	"	-	-	" "	"	"
	A	-	" "	"	"		-	" "	"	"
FRAME No. -	F	-	" "	"	"	Intermediate Bulkheads	-	" "	8"	2-1" T+G.
	A	-	" "	"	"		-	" "	"	"
FRAME No. -	F	-	" "	"	"	-	-	" "	"	"
	A	-	" "	"	"		-	" "	"	"
FRAME No. - (After Peak)	F	-	" "	"	"	-	-	" "	"	"
	A	-	" "	"	"		-	" "	"	"
SIDES	-	-	Gran. Cork	10" + 10 1/2"	2-1" T+G.	-	-	Gran. Cork	10"	2-1" T+G.
OVERHEADING	-	-	" "	10"	2-3/4" T+G.	-	-	" "	10"	2-3/4" T+G.
FLOORS OF CHAMBERS	-	-	" "	10"	1-1" T+G. + 2" Ceiling	-	-	" "	3"	1-1" T+G. + 2" Ceiling
TRUNK HATCHWAYS	-	-	" "	"	"	-	-	" "	"	"
THRUST RECESS, SIDES AND TOP	-	-	" "	"	"	-	-	" "	"	"
TUNNEL SIDES AND TOP	-	-	" "	"	"	-	-	" "	"	"
TUNNEL RECESS, FRONT AND TOP	-	-	" "	"	"	-	-	" "	"	"

FRAMES OR REVERSE FRAMES, FACE 2-1" T+G. Cleading + space packed with Granulated Cork.  
 BULKHEAD STIFFENERS, TOP 2-1" T+G. Cleading + Cork BOTTOM -do- AND FACE -do-  
 RIBBAND ON TOP OF DECKS 3" x 3" grounds on deck with cleading + 2" pine ceiling.  
 SIDE STRINGERS, TOP 1" Boarding + Cork BOTTOM -do- AND FACE -do-  
 WEB FRAMES, SIDES AND FACE -do-  
 BRACKETS, TOP 2-1" T+G. Cleading + cork BOTTOM -do- AND FACE -do-  
 INSULATED HATCHES, MAIN 1-3/4" T+G. each side, 8" cork BILGE 1-2" T+G. each side, 8" cork MANHOLE 2" P.P. sides, 8" cork.  
 HATCHWAY COAMINGS, MAIN 7" pine x 15" deep BILGE 2 1/2" pine x 12" deep  
 HOLD PILLARS 1 1/2" cleading, 3" cork  
 MASTS -do- VENTILATORS Built in trunk ventilators (See plan)  
 Are insulated plugs fitted to provide easy access to bilge suction roses Yes tank, air, and sounding pipes Yes heels of pillars Yes  
 and manhole doors of tanks Yes Are insulated plugs fitted to ventilators Yes cargo ports Yes and side lights Yes  
 Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected Yes if so, how 2" Hardwood ceiling

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 adjacent  
 Coal Bunker Bulkheads, and Brine Outflow and Return Pipes passing through coal bunkers. Is the insulation, so far as practicable, fireproof Yes  
 Where 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 3" x 2" x 12" floors 3 1/2" x 12" tunnel top Yes  
 fixed or portable fixed Are screens fitted over the brine grids at chamber sides Hatched hinged or permanently fixed permanently  
 Thermometer Tubes, No. and position in each chamber No. 1 Lower hold 3, No. 2 Lower hold 4, Tween Decks 2 each, P.S. in fore + aft positions.  
 diameter 2 1/2" 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. Where the chambers are situated below the load water line, what provision is made for draining the inside of the chambers  
Liquid seal traps Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off Yes  
 What provision is made for draining the refrigerating machinery room scrappers to upper deck  
 brine return room -do- fan room -do- water circulating pump room -do-  
 Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers No air spaces



**Sounding Pipes**, No. and position in each chamber situated below the load water line Above water line  
 Diameter 2 1/2" Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 11 Yes  
 Are all wood linings tongued and grooved Yes Are cement facings reinforced with expanded steel lattice No cement  
 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**, inside dimensions, main ✓ and branch ✓  
 Are they permanently fixed or collapsible, or portable ✓ State position in chambers ✓  
 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 1 1/2" Are they galvanised externally No  
 How are they arranged in the chambers In grid sections, overhead, sides & ends.  
**Thawing Off**, what provision is made for removing the snow from the cooling pipes in the chambers Steam heating of brine.

HONGKONG & WHAMPOA DOCK CO., LTD.

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

R.M. Dyer  
 Chief Manager. Builders.

**Plans**. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery ✓ and Insulation Approved  
 (If not, state date of approval) 1 Feb Dec. 9th 1924  
 Is the Refrigerating Machinery and Appliances duplicate of a previous case Yes If so, state name of vessel S.S. "CHANGE"  
 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 machinery has been constructed under special survey and the materials and workmanship are good.

The insulation of chambers has been fitted in accordance with approved plans, and machinery installed & tested under special survey.  
 The materials & workmanship are good & it is recommended that the vessel be classed with Lloyd's Refrigerating Machinery Certificate and the record of Lloyd's R.M.C. - 1-26 be made in the Register Book.

It is submitted that this vessel is eligible for THE RECORD. + Lloyd's RMC 1. 26.

W.D. 9/3/26

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	POWER.		INSULATED CARGO CHAMBERS.	
No. and whether Single or Duplex.	Makers.	Date of Construction.	System.	Type.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.
1 Double Acting Compressor	Haslam Foundry	1926	Ammonia	Haslam	1) Brine 2) Insulated Cork	30	8	49,000.5	✓

Fee (3rd fee) £ 3.0.0 Fee applied for, 18 MAY 1925  
 Travelling Expenses £ 5.19.6 Received by me, 14/8/25

D. Gemmell & for J.S. Gordon.  
 Surveyor to Lloyd's Register.

Committee's Minute

FRI. 12 MAR 1926

Assigned

+ Lloyd's R.M.C. 1-26

CERTIFICATE WRITTEN



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