

Rpt. 17.

## REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

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No. in

Reg. Book.

41067

Survey held at Wallsend on Tyne Date: First Survey 20 Nov Last Survey 22. 12. 1933

(No. of Visits)

20

on the Refrigerating Machinery and Appliances of the T.S.M.V. "PORT CHALMERS" Tons {Gross 8535 Net 8535}

Vessel built at Wallsend on Tyne By whom built Wigham Richardson Ltd. Yard No. 1483 When built 1933

Owners Commonwealth &amp; Dominion Line Ltd. Port belonging to London Voyage

Refrigerating Machinery made by J.E. Hall Ltd. Machine No. 8871 8872 8873 When made 1933

Insulation fitted by Gregson &amp; Co. Ltd. When fitted 1933 System of Refrigeration Carbonyl Amine

Method of cooling Cargo Chambers Brine grids &amp; air Insulating Material used Slab Cork in cheese &amp; chilled meat Rooms.

Number of Cargo Chambers insulated 14 Chambers Total refrigerated cargo capacity 458590 cubic feet.

DESCRIPTION OF REFRIGERATING MACHINERY, Where placed 2<sup>nd</sup> Deck aft E.R. Casing

Refrigerating Units, No. of 3 Single, double, or triple ✓ Cubic feet of air delivered per hour ✓

Total refrigeration or ice-melting capacity in tons per 24 hours 168 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 No. of cylinders 2 per machine

Diameter of cylinders 5" Diameter of piston rod 2 1/4" Length of stroke 10" No. of strokes per minute 300

Motive Power supplied from Direct coupled Electric motor

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 6 1/2" Journals 7" pins.

Breadth and thickness of crank webs 9" x 4 1/2" No. of sections in crank shaft one Revolutions of engines per minute 300

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 ✓

Electric Motors, type Open - pedestal bearings No. of 3 Rated 160 H.P. Kilowatts 375

Volts 220 at 300/200 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 ✓

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

1st 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 3 Cast iron or steel casings Cast iron Cylindrical or rectangular cylindrical

No. of coils in each 14 Material of coils S/O Copper 3/4" b x 1" o/p. Can each coil be readily shut off or disconnected yes.

Water Circulating Pumps, No. and size of 2 @ 200 tons/hr each how worked Electrically Gas Separators, No. of 6

Gas Evaporators, No. of 3 Cast iron or steel casings Steel Pressure or gravity type pressure

No. of coils in each casing 14 Material of coils S/O Steel 1" b x 1 1/2" o/p. Can each coil be readily shut off or disconnected yes.

Direct Expansion or Brine Cooled Batteries, No. of 5 Aux. Coolers in place of water grids. Are there two separate systems, so that one may be in use while the other is being cleared of snow 20. No. of coils in each battery ✓ Material of coils S/O Steel 1" bore Can each coil be readily shut off or disconnected yes.

Total cooling surface of battery coils 160 Sq. feet Is a watertight tray fitted under each battery ✓

Air Circulating Fans, Total No. of 5-35" each of 5000 c.f./min. 1800 R.P.M. 1900 revolutions per minute

Steam or electrically driven Electricity Where spare fans are supplied are these fitted in position ready for coupling up 20.

Brine Circulating Pumps, No. and size of, including the additional pump 4-5" Vert. Centr. how worked Electrically

Brine Cooling System, closed or open Closed Are the pipes and tanks galvanised on the inside 20.

No. of brine sections in each chamber See Separate Sheet attached

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







### DESCRIPTION OF INSULATION.

IN LOWER HOLD CHAMBERS.						IN 'TWEEN DECK CHAMBERS.					
	Air Space.	Outer Lining	Non-conducting Material.	Thickness of ditto.	ic Chamber Inner Lining.	Air Space.	Outer Lining	Non-conducting Material.	Thickness of ditto.	ic Chamber Inner Lining.	
FRAME No. 176 (Fore Peak)	A	none	none	Gum Cork	1 1/2	1/4 T&G	none	none	Gum Cork	1 1/2	1/4 T&G
No 1 Hold	F	"	"	"	4	"	"	"	6	"	"
FRAME No. 146	A	"	"	"	10 3/4	"	"	"	7	"	"
No 2	F	"	"	"	9 3/4	"	126 ft. P&A	"	5 1/2	"	"
FRAME No. 120	A	"	"	"	5	"	"	"	6 1/2	3/8 Plywood	"
No 3	F	"	"	"	11 1/2	"	"	"	11 1/2	3/8 Plywood	"
FRAME No. 96	A	"	"	"	65 ft. A	Tot. Provision cheese rooms	"	"	4	1/4 T&G	"
MOTOR ROOM	F	"	"	"	"	Stables Chilled meat	"	Slab cork	7	1/2 Hardite Sheeting	"
FRAME No. (Bottom Room)	A	"	"	"	"	"	"	"	"	"	"
FRAME No. 73 (Engine Room)	A	none	none	Gum Cork	1 1/2	"	"	Slab cork	12 1/2	1/2 Hardite Sheeting	"
No 4	F	1 1/2 air space in way O.F.	Side tanks	"	9 3/4	"	"	Gum Cork	6 1/2	1/4 T&G	"
FRAME No. 46	A	in No 5 Hold	"	"	5	"	"	"	6 1/2	"	"
No 5	F	none	none	"	11 1/2	"	"	"	11 1/2	"	"
FRAME No. 23	A	"	"	"	"	"	"	"	"	"	"
FRAME No. (After Peak)	F	"	"	"	"	"	"	"	"	"	"
SIDES	...	none	none	Gum Cork	No 1 Hold 1 1/2 to 1 1/4 others 10 1/2	1/4 T&G	none	none	Gum Cork	11 1/2	1/4 T&G 5/8 Plywood in No 3
OVERHEADING	...	"	"	"	11 1/2	3/4 T&G	"	"	"	10 1/2	3/4 T&G 5/8 Plywood in No 3
FLOORS OF CHAMBERS	...	"	"	"	7	1 1/2 T&G	No 1-2 3 or 4	"	"	3'	1/4 T&G
tank top in way of	...	1 1/2	1 1/2 Fine sheeting	"	6	1 1/2 T&G					
TRUNK HATCHWAYS	...										
THRUST RECESS, SIDES AND TOP	...										
TUNNEL SIDES AND TOP	...						none	none	Gum Cork	9 1/2	top 2 1/2 P.P. T&G sides 1 1/2 T&G
TUNNEL RECESS, FRONT AND TOP	...						1 1/2 air space over wing tanks at Sides of tunnel				in No 5 Hold.
FRAMES OR REVERSE FRAMES, FACE	Grounds 4 1/2 x 1 1/2 on face & 1 1/4 T&G lining										
BULKHEAD STIFFENERS, TOP	Gum Cork between brackets BOTTOM Gum Cork between bulks. and face Gum Cork 1/2 minimum										
RIBBAND ON TOP OF DECK	Visible in No 5 only. 5 x 3 1/2 P.P. 2'-6" to 3'-0" from insulation at bulk. Sides. No 1, 2, 3, 4 tween decks insulated with 3" Gum Cork covered with 1/4 T&G, thus covering ribs. Fore hold only BOTTOM Insulation incorporated in side insulation & hatchfell.										
SIDE STRINGERS, TOP	FORE hold only BOTTOM Insulation incorporated in side insulation and face										
WEB FRAMES, SIDES	AND FACE										
BRACKETS, TOP	BOTTOM Steel plated 7 1/2" G. Cork linings 1' x 1 1/2" MANHOLE 6' x 7 1/2" Gum Cork linings 1' x 1 1/2"										
INSULATED HATCHES, MAIN	Plugs 4'-3" x 3'-0" - 6 1/2" G. Cork Bilge Coamings 10 1/2 x 2 1/2										
HATCHWAY COAMINGS, MAIN	Tapered P.P. & 3/16 Gal. plates Bilge										
HOLD PILLARS	4 x 2 P.P. planking secured with G.I. bands.										
MASTS	not in way man. VENTILATORS Insulated plugs in str. no vent tubes in way.										
Are insulated plugs fitted to provide easy access to bilge suction roses Yes tank, air, and sounding pipes Portable lining heels of pillars											
and manhole doors of tanks Yes 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 Yes if so, how tank top 1 1/2' then under hatches tunnel top 2 1/2' P.P.											
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 AC wings only in way No 5 Hold, common with bilge.											
Coal Bunker Bulkheads, and Brine Outflow and Return Pipes passing through coal bunkers. Is the insulation, so far as practicable, fireproof O.F. Bulkheads only											
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 2 1/2 x 2 1/2 - 12' apart floors 3 x 3 - 12' apart tunnel top 3 x 3 - 12' apart											
fixed or portable portable on floors Are air trunks filled over the brine grids at chamber sides Yes in tween decks hinged or permanently fixed Portable											
Thermometer Tubes, No. and position in each chamber Generally 4 in each at sides & ends also electrical thermometers.											
diameter 2 1/2" internal dia. 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 Four 4" Scupper to bilge in each hold with drain trap & flap 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 3 @ 2 1/2" dia Scupper discharging overboard fitted with storm valve											
brine return room 1 Scupper evaporator room 1 Scupper water circulating pump room 2 Scupper											
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 *Hand double bottom bilge sounding pipes incorporated in bulkhead or shell lining*  
Diameter *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 *Yes*  
How is the expanded metal secured in place *Yes*  
How are the cork slabs secured to the steel structure of the vessel *patent Cement*  
Air Trunkways in Chambers, inside dimensions, main *Generally 8-11" at sides of tween decks* and branch *10-15" at Bulkheads* Trunkways *Yes* in Holds  
Are they permanently fixed or collapsible, or portable *Portable* State position in chambers *Both sides & 1 cut in each tween deck*  
Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors *Yes* Are the door frames efficiently insulated *Yes*  
Are insulated plugs supplied for the doorways *Yes* Where are the doors worked from *Yes*  
Cooling Pipes in Chambers, diameter *1 1/2"* Are they galvanised externally *Yes*  
How are they arranged in the chambers *Roof side grids*  
Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers *Steam heated brine*

The foregoing is a correct description of the Insulation and Appliances. *For Messrs. Ferguson & Co. Ltd. J. J. Palmer Builders.*

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery and Insulation *Yes*  
(If not, state date of approval) *Somewhat similar to H.S. Port Fairy*  
Is the Refrigerating Machinery and Appliances duplicate of a previous case *Complete*  
If the survey is not complete, state what arrangements have been made for its completion and what remains to be done

General Remarks (State quality of workmanship, opinions as to class, &c.)  
*The materials & workmanship are good.*  
*The requirements of the Society's Rules have been carried out and the vessel is in our opinion, eligible to have the notation + Lloyd RMC 12.33 recorded in the Register Book.*  
*NT 253 tween decks are gas tight for carriage of chilled meat.*  
*This report has been signed by the Insulation Contractors who are responsible to the Owners for the carrying out of the work.*

PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	POWER.		INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity. Cubi
3	6	Carb. Amby.	J. & C. Hall Ltd.	1933	(1) Brine & Air (2) Granulated cork chilled meat chase rooms Slab cork faced with Unilite		168	14	458.

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 otherwise.	Makers.	Date of Construction.	System.	Type.		Cubic feet of air delivered per hour.	Ice melting capacity per 24 hours. Tons.	No.	Capacity.

*Surveyors to Lloyd's Register.*  
*It is submitted that this vessel is eligible for THE RECORD.*  
*+ Lloyd's RMC 12.33*  
*Assigned + Lloyd's RMC 12.33*  
*27/12*  
*Lloyd's Register Foundation*