Rpt. 17.

R. M. C. No. 18139

NEWCASTLE-ON-TYNE No. 7667

# REPORT ON REFRIGERATING MACHINERY AND INSULATION.

(Received at London Office SAT. 28APR. 1923)

Date of writing Report 27 NOV 1922 19 When handed in at Local Office 27 NOV 1922 Port of London

No. in Reg. Book. 67692 Survey held at Derby. Date: First Survey 18th October 1920 Last Survey 26th September 1922 (No. of Visits ELEVEN)

on the Refrigerating Appliances of the ~~Iron or~~ Steel T.S.S "MONCOLIA." Master

Tons { Gross 15550 (16384) Net 9550 (10254) } Vessel built at Newcastle. By whom Armstrong Whitworth & Co When 1922

Owners P & O. Stm Nav. Co Port Newcastle Voyage

Carb. Anhy. System. Machinery made by Haslam Foundry & Eng. Co. Ltd When 1922

Insulation fitted by See No 2 Armstrong Whitworth & Co? When 1923

Non-conducting material used Cork Number of insulated chambers 4 Cargo 9 Provision Chambers Total capacity 137026 cub. ft.

Hatches fit forward

**DESCRIPTION OF MACHINES, ETC.** No. of machines 2 Single or duplex duplex Where placed Main deck aft

Power of each machine in tons of ice melted per 24 hours 56 Sizes of steam cylinders 13" and 23" Stroke 15"

Revolutions per minute 80 Working pressure 120 lbs No. of compression cylinders 2 each H/P Diameter of each 4 1/2"

Single or double acting double. Stroke 15" Diameter of crank shaft 5 1/2" How are air, circulating and feed pumps worked off crankshaft independent air pump Are they in duplicate No. Can their work be performed by main engines Yes.

No. of gas condenser coils 16 each H/P Can each be readily disconnected Yes. No. of refrigerator coils 10 each H/P Can each be readily disconnected Yes

No. of brine pipe sections 45. Can each be readily disconnected Yes. What test has been applied to gas cylinders and coils 3000 lb hyd 1500 lb air to cast iron connections 120 lbs hyd to refrigerator coils 3000 lb hyd & 1500 lb air

to brine pipe sections 90 lbs. Are outlets of brine return pipes accessible Yes. Is each fitted with a thermometer Yes.

What pipes in connection with refrigerating appliances are carried through bunkers or holds None. Brine pipes for No 1 and No 5 hold How are they protected Cased

What means are adopted for draining engine room Scuppers Is all necessary auxiliary machinery supplied Yes.

**SPARE GEAR.** ARTICLES REQUIRED BY RULES AND SUPPLIED.

1 set of H.P. steam cylinder piston rings
1 piston for H.P. cylinder with rings complete
1 piston valve for H.P. cylinder
1 steam valve spindle for – do –
1 set of L.P. steam cylinder piston rings
1 piston for L.P. " " with rings complete
2 compressor pistons + rods + 1 pair of coupling nuts with bolts
4 compressor suction valves, seats & springs for each machine
4 " " delivery " " " "
24 additional springs for valves (12 suction & 12 delivery)
2 floating compressor glands
4 lanterne glands, 8 distance glands, 4 neck bushes
4 outer glands, 4 inner glands
2 complete sets copper forked rings
1 extra set for each compressor
1 hand pump for oil lubricator
24 $CO_2$ safety valve discs. 48 compressor gland leathers
2 sleeves for compressor gland leathers
2 sets compressor piston rings. (12 outer, 6 inner)
4 lubricator piston leathers.
4 " gland "
1 set of 3 leather moulds. 2, $CO_2$ gauges, 2 hydrometers
3 springs for $CO_2$ safety valve
2 " " Brine relief valve
3 " " water "
6 brass cased thermometers (P & O pattern Lilleys)
1 length of 1/2 and 1/4 copper gauge pipe.
2 $CO_2$ gauges
1 spare armature for 35" fan motors, fitted in brine lined locked up case, armature to be wrapped in waterproof canvas cover
2 canvas covers for fitting over fan motors.
1 set of brushes " " "
1 spare armature for 10" fan motor
1 spare set of brushes " " "
80 flasks each to contain 40 lbs liquid $CO_2$ and fitted with patent safety valve & disc

ADDITIONAL SPARE GEAR SUPPLIED.

2 – 1/2 tons of calcium chloride, in 5 or 6 cwt drums
1 butt hydraulic leather
10 lbs cotton wall packing
2 pairs connecting rod bolts & nuts.
2 " crosshead " "
4 main bearing studs & nuts
1 set of valves for air pump
1 set of valves rings & springs for brine pump
1 " " " " " air "
1 " " " for feed pump
1 Brine " pump complete
1 pair of crank pin shells lined with Durameo White Brand
1 pair of piston rod brasses
1 air pump connecting rod.
10 steam condenser tubes & 24 ferrules for same
1 set of gas taps & dies to suit 1/8" 1/4" 1/2" 1" to 2".
2 gas taps one 1 1/4" and one 1 1/2".
1 pair tongs for brine pipe unions
2 spanners " " " nuts
2 – 402 Mill oil filler
1 half crank shaft to suit either side of machine
1 steam piston rod & nut
1 air pump bucket & plunger
1 air " " rod.
1 secondaire sheave strop & rod, each pattern
3 lengths & bends each 1 1/4" & 1 1/2" piping
12 socket & back nuts for do –
1 $CO_2$ regulator valve spindle
4 brass rings for compressor gland
2 leather washers " "

ARTICLES REQUIRED BY RULES AND NOT SUPPLIED

THE HASLAM FOUNDRY & ENGINEERING CO LIMITED

**The foregoing is a correct description.** A. O Hough SECRETARY Manufacturers.

**GENERAL REMARKS AND RECOMMENDATION** (If Survey is not complete state what remains to be done) This machinery has been built under special survey, the materials and workmanship are good, To entitle the vessel to the record of ✠ Lloyds R.M.C. (with date) the machinery requires to be efficiently fitted on board, the spare gear checked the brine pipes tested, the machinery examined under working conditions and the insulated cargo holds cooled down to say 10° FAR. before loading a refrigerated cargo. See separate report of.

H. H. Ashton & Francis Pelton

Surveyor to Lloyd's Register of Shipping.

1m.11.18.—T.

004170-004176-0085

© 2021 Lloyd's Register Foundation

## DESCRIPTION OF INSULATION.

| | IN LOWER HOLDS. | | | | | IN 'TWEEN DECKS. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Air Space. | Outer Lining. | Non-conducting Material. | Thickness of ditto. | Inner Lining. | Air Space. | Outer Lining. | Non-conducting Material. | Thickness of ditto. | Inner Lining. |
| SIDES | ✓ | ✓ | Gran. Cork | 14 | 7/8 + 5/8 | ✓ | ✓ | Gran. Cork | 12 + 13 | 7/8 + 5/8 |
| OVERHEADING | ✓ | ✓ | " | 10 | " | ✓ | ✓ | " | 10 | " |
| BULKHEADS No. 1. F | 1 3/4 | 7/8 | " | 11 1/2 | " | ✓ | ✓ | " | 10 | " |
| " " A | 1 1/4 | " | " | " | " | ✓ | ✓ | " | 10 | " |
| " No. 2. F | | | | | | | | | | |
| " " A | | | | | | | | | | |
| " No. 3. F | | | | | | | | | | |
| " " A | | | | | | | | | | |
| " No. 4. F | | | | | | | | | | |
| " " A | | | | | | | | | | |
| " No. 5. F | 1 3/4 | 7/8 | Gran. Cork | 10 1/2 | 7/8 + 5/8 | " | " | " | 10 1/2 | 7/8 + 5/8 |
| " " A | " | " | " | " | " | ✓ | ✓ | ✓ | " | " |
| " No. 6. F | | | | | | | | | | |
| " " A | | | | | | | | | | |

RIBBAND, MAIN DECK Wood deck laid 6 × 3 teak.

BOTTOM Tank tops gran. cork. 6": Lining 3/4 + 2 1/4: Elm sheathing under hatch.: 2" air space.

HATCHWAYS Gran. Cork 6 1/2": Linings 2 @ 7/8 + 5/8 boards T+B. Sides. 1 1/2 T.+ 7/8 wp. frames.

FRESH WATER TANKS ✓ MASTS ✓

TUNNEL 10" gran. cork: 1 1/4 + 1 1/4 lining (Elm under hatches) STANCHIONS 1 1/2 bolting + 2 1/2 silicate.

SNOW BOX ✓ BILGE SUCTION & AIR & SOUNDING PIPES inside lining (7" min.)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Centre Keelson, Sides* | ✓ | *Top* | ✓ | *Side Keelson, Sides* | ✓ | *Top* | ✓ |
| *Bilge " Sides* | ✓ | *Top* | ✓ | *Web frames, Sides* | ✓ | *Face* | ✓ |
| *Bilge Stringers, Top* | No. 1 hold 2" Gran. C. + 7/8 + 5/8 lining | *Bottom* | | ✓ | *Face* | ✓ | |
| *Side " Top* | " " 2 " " | *Bottom* | | ✓ | *Face* | ✓ | |
| *Hold or Orlop Stringer, Top* | ✓ | *Bottom* | | ✓ | *Face* | ✓ | |
| *Brackets* | 5 G.C. T.+B. 7/8 + 5/8 lining | *Sides* | ✓ | | *Face* | | |

*Are insulated hatches fitted over limbers* yes. *and manhole doors of tanks* yes.

*Are insulated plugs fitted in way of all sluices* ✓ *bilge suctions* yes. *sounding pipes* yes.

*Are insulated plugs fitted to ventilators* yes. *to cargo ports* ✓ *in side insulation for examination of ship's side* screwed top boards & inspection plugs.

*Are the bottoms, sides and coamings of all insulated hatches coated to prevent decay* yes.

*Are portable boxes fitted in overheadings for replenishing side insulation* yes. *and on tunnel tops* Screwed top boards.

*What means, if any, are taken to protect the bottom insulation in way of hatchways* 2 1/4 elm sheathing.

*Dimensions of cargo battens, on sides* 5 9 Rl. only 2 1/2 × 2 1/2 *on bottom* 3" × 1 1/2" *spacing* 1-3"

*Are these permanently fixed or portable* fixed

*Number of thermometer tubes in each chamber* 8 — No. 5 4 5 in No. 1 hold & 8 in 'tween decks.

*Position of do.* as shown on plan.

*Are the flanges and covers of thermometer tubes efficiently fitted* yes *Are all wood linings tongued and grooved* yes — except 2 1/4 on bottom which caulked & payed. & Aft tunnel outside lining caulked & payed.

*Description and arrangement of trunkways or brine pipes for the distribution of cold* Air as Trunk ✓ As per plan.

*Do any trunkways pass through water-tight bulkheads* yes. *are water-tight doors fitted* yes. *and efficiently insulated* yes.

*What means are adopted for closing the trunkways when carrying general cargo* hand gearing.

for SIR W. G. ARMSTRONG, WHITWORTH & CO. Ltd.
Pres. Bolleu.

**The foregoing is a correct description.** *Builders.*

## PARTICULARS TO BE ENTERED IN REGISTER BOOK.

| REFRIGERATING MACHINES. | | | | | | POWER. | | INSULATED CARGO CHAMBERS. | |
|---|---|---|---|---|---|---|---|---|---|
| No. and whether Single or Duplex. | Makers. | Date of Construction. | System. | Type. | System of (1) Refrigerating (2) Insulating the Chambers. | Cubic feet of air delivered per hour. | Ice melting capacity per 24 hours. | No. | Capacity. |
| 2 sets Duplex | Haslam Ft E Co Ltd | 1922 | Carbonic anhydride | Haslam | (1) Direct Air (2) Gran. Cork. | ✓ | Tons. 56 | 4 cargo | 137026 |

Lon M/c £6-0-0
Nwc M/c £12-0-0

*Fee* £ : : *Fee applied for,* Rochwe 27/11/22 19

*Travelling Expenses* £ 5 : 19 : 0 *Received by me,* 7/5/23 H.W.H. 9/5.

Lon M/c

K. Langlands.
*Surveyor to Lloyd's Register.*

*Committee's Minute* FRI. MAY. 11 1923 TUE. 25 APR 1933

*Assigned* See Amb 18185 FRI. 12 MAY 1933 TUE. 15 AUG 1933

*Certificate to be sent to*

© 2021 Lloyd's Register Foundation