

REPORT ON REFRIGERATING MACHINERY AND APPLIANCES.

(Received at London Office)

Date of writing Report

19

When handed in at Local Office

26/3/41

Port of

NEWCASTLE-ON-TYNE

No. in

Reg. Book.

Survey held at Newcastle

Date: First Survey

12 Aug 1940

Last Survey

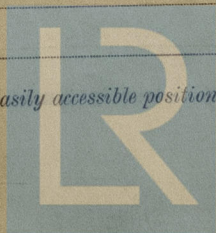
17 March 1941

(No. of Visits)

6.

on the Refrigerating Machinery and Appliances of the *Steel Liner* *"ARONDA"* Tons { Gross 9031 Net 4463Vessel built at Newcastle on Tyne By whom built *Swan, Hunter & Wigham Richardson* Yard No. 1640 When built 1941-3.Owners *British India Ste. Nav. Co. Ltd.* Port belonging to *London* Voyage.Refrigerating Machinery made by *J. E. Hall, Ltd.* Machine Nos. 10561 10562 When made 1940.Insulation fitted by *Newall's Insulation Co.* When fitted 1941. System of Refrigeration *CO₂ & Brine*.Method of cooling Cargo Chambers *Brine grids* Insulating Material used *slab cork*Number of Cargo Chambers insulated *4* Total refrigerated cargo capacity *4520* cubic feet.DESCRIPTION OF REFRIGERATING MACHINERY. Where placed *In Shaft Tunnel at aft Thrust, See also London Rpt No RMC.1215. Excess.*Refrigerating Units, No. of *2* No. of machines *2* Is each machine independent *Yes*Total refrigeration or ice-melting capacity in tons per 24 hours *15* Are all the units connected to all the refrigerated chambers *Yes*Compressors, driven direct *on the shaft* *single* *double* *reduction* *gearing*. Compressors, single or double acting *single acting*. If multiple effect compression *No*are relief valves or safety discs fitted *Safety discs* No. of cylinders to each unit *2* Diameter of cylinders *28"*Diameter of piston rod *1"* Length of stroke *6"* No. of revolutions per minute *400 max*Motive Power supplied from *THREE KW. STEAM TURBO-GENERATORS in Main Eng. Rm.**CO₂ Compressors* (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 *3" journals; 3 1/2" cr. pins*Breadth and thickness of crank webs *60° 1 3/4"* No. of sections in crank shaft *One* Revolutions of *CO₂ mach* engines per minute *400 max.*Oil Engines, type *✓* *13 1/2"* 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:—Is each receiver, which can be isolated, fitted with a safety valve as per Rule *✓*Can the internal surfaces of the receivers be examined *✓* What means are provided for cleansing their inner surfaces *✓*Is there a drain arrangement fitted at the lowest part of each receiver *✓* If made under survey *✓*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 *Enclosed ventilated* No. of *2* Rated *25 HP* Kilowatts *✓*Volts *220* @ *300/400* revolutions per minute. Diameter of motor shafts at bearings *✓*Reduction Gearing *none* 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 *Cast iron* Cylindrical or rectangular *Cylindrical* Are safety valves fitted *✓*to casings *Yes* No. of coils in each *7* Material of coils *S.D. Copper 3/4" x 1 1/4"* Can each coil be readily *✓* disconnected *Yes*Water Circulating Pumps, No. and size of *One 2" Horiz Centrif* how worked *all by Electric Motors* Gas Separators, No. of *4*Gas Evaporators, No. of *2, combs* Cast iron or steel casings *Steel* Pressure or gravity type *gravity* If pressure type, are safety valves fitted *✓*No. of coils in each *3* Material of coils *S.D. Steel 5/8" x 1 1/4"* Can each coil be readily *✓* disconnected *Yes*Direct 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 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 *two - 2" Horiz Centrif* how worked *by Elec. motors.*Brine Cooling System, closed or open *✓* Are the pipes and tanks galvanised on the inside *✓*No. of brine sections in each chamber *one to each chamber.*Can 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.



Common

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 *✓*

Are the number and capacity of the machines and the number of pumps and sea connections in accordance with Section 2, Clause 1 of the Rules *Yes*

Is the exhaust steam led to the main and auxiliary condensers *✓*

HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
ENGINE CYLINDERS (IF TESTED) ...	<i>✓</i>					
GAS COMPRESSORS ...	<i>12-6-40</i> <i>25-6-40</i>	<i>1000 lbs</i>	<i>3000 lbs</i>	<i>1500 lbs</i>	<i>D.G.</i>	
„ SEPARATORS ...	<i>12-6-40</i>	<i>do</i>	<i>do</i>	<i>do</i>	<i>D.G.</i>	
„ MULTIPLE EFFECT RECEIVERS...	<i>none</i>	<i>—</i>	<i>—</i>	<i>—</i>	<i>—</i>	
„ CONDENSER COILS ...	<i>5-1-40</i> <i>12-1-40</i>	<i>do</i>	<i>do</i>	<i>do</i>	<i>D.G.</i>	
„ EVAPORATOR COILS ...	<i>28-8-40</i> <i>4-6-40</i>	<i>do</i>	<i>do</i>	<i>do</i>	<i>D.G.</i>	
„ CONDENSER HEADERS AND CONNECTIONS	<i>12-6-40</i> <i>10-7-40</i>	<i>do</i>	<i>do</i>	<i>do</i>	<i>D.G.</i>	
„ CONDENSER CASINGS ...	<i>12-6-40</i>	<i>10-15 lbs</i>	<i>30 lbs</i>	<i>✓</i>	<i>D.G.</i>	
„ EVAPORATOR CASINGS ...	<i>open top.</i>					
NH ₃ CONDENSER, EVAPORATOR AND AIR COOLER COILS AFTER ERECTION IN PLACE	<i>✓</i>					
BRINE PIPING AFTER ERECTION IN PLACE...	<i>11/10/40</i> <i>10/3/41</i>	<i>10-15 lbs</i>	<i>30 lbs brine</i> <i>10/2/41</i>	<i>90 lbs</i> <i>11/10/40</i>	<i>Ad. note/2/41</i>	

Have important steel castings and forgings been tested in accordance with the Rules *Yes*

Cooling Test. Has the refrigerating machinery been examined under full working conditions, and found satisfactory *Yes.*

Dates of test *7th Mar. 1941.* Density of Brine *47°* by *Twaddell* hydrometer

Temperatures (when the cargo chambers are cooled down to the required test temperatures)

or, delivery and return air at direct expansion or brine cooled batteries *✓* & *✓*, outflow and return brine *-5°7* & *-4°57*

atmosphere *50°7* cooling water inlet and discharge *40°7* & *42°7* gas in condensers *52°7* and evaporators *-7°7*

the average temperature of the refrigerated chambers *5°7* and the rise of temperature in these chambers upon the expiration of *twelve* hours
time after the machinery and cooling appliances have been shut off *12°7.*

Ad. note/2/41
Newcastle on Tyne
11/3/41

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:—

<i>12 lubricator piston leathers</i>	<i>2 springs for CO₂ Safety Valves, 2 springs for Water relief Valves</i>
<i>12 " gland "</i>	<i>2 bolts & nuts for Crosshead, 1 CO₂ gauge, 1 hydrometer,</i>
<i>1 set of 2 leather moulds</i>	<i>1 pair main bearing brasses with bolts & nuts</i>
<i>12 addl Valve springs for Comp^r.</i>	<i>1 pair big end " " " "</i>
<i>2 sets Copper joint rings for " joints</i>	<i>1 set for other joints, 1 CO₂ gauge + 3 spare pipes</i>
<i>2 brass cased thermometers.</i>	<i>12 safety discs, 1 set screwing dies for 1 1/4" & 1 1/2" pipes</i>
<i>2 pairs CO₂ pipe flanges</i>	<i>Fitted box for Comp^r pistons, valves, etc.,</i>
<i>1 impeller for Circ. Water pump,</i>	<i>1 impeller for brine pump, 1 hand pump for pressure lubricator</i>
<i>1 spindle for ditto.</i>	<i>1 spindle for ditto</i>
<i>1 bearing assembly for ditto.</i>	<i>1 bearing assembly for ditto,</i>

Electrical Spares:—

one Armature
one set of bearings
one field coil
one interpole coil
one line of brush holders
one set of brushes
one set of Controller spares

for machine motors,
pump motors, each size

The foregoing is a correct description of the Refrigerating Machinery.

J. & E. HALL, LTD.

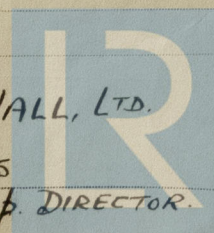
Signed by

F. WELLS

P. DIRECTOR.

Manufacturer.

Foundation



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DESCRIPTION OF INSULATION.

BULKHEADS.

TWEEN DECKS IN LOWER HOLD CHAMBERS. (3 chambers)						UPPER IN 'TWEEN DECK CHAMBERS. (1 chamber)					
	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. (Engine Room)	A										
FRAME No.	F	Frame 56	3/16" asbestos cement sheet	slab cork	12"	✓	Frame 55	3/16" asbestos cement sheet	slab cork	6"	3/16" asbestos cement sheet
FRAME No.	A	" 49	"	"	12"	✓	" 51	"	"	12"	"
FRAME No.	F	Stand. Side	"	"	12"	✓	Sides Outboard	"	"	12"	"
FRAME No.	A	Port Side shell	"	"	12"	✓	Sides Inboard	"	"	6"	"
FRAME No.	F	Intermediate division	"	"	6"	3/16" asbestos cement sheet					
FRAME No.	A										
FRAME No. (After Peak)	F										
SIDES			3/16" asbestos cement sheet	slab cork	10"	✓	✓	3/16" asbestos cement sheet	slab cork	10"	✓
OVERHEADING			1 1/2" Durastic	"	8"	✓		1 1/2" Durastic	"	4"	✓
FLOORS OF CHAMBERS											
TRUNK HATCHWAYS											
THRUST RECESS, SIDES AND TOP											
TUNNEL SIDES AND TOP											
TUNNEL RECESS, FRONT AND TOP											

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

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 ✓ 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 Cooling Pipes pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof ✓

Cargo Battens, Dimensions and spacing, sides Surfaces floors over beams tunnel top ✓

fixed or portable portable Are screens fitted over the brine grids at chamber sides yes hinged or permanently fixed Portable

Thermometer Tubes, No. and position in each chamber upper twin dks -- one fitted in door leading to insulated store passage. lower " " -- one fitted central in each chamber.

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. What provision is made for draining the inside of the chambers Scuppers

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 Fitted in tunnel.

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. ✓



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0203 2/2

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 ✓ 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 ✓

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 ✓

Are insulated plugs supplied for the doorways ✓ Where are the doors worked from ✓

Cooling Pipes in Chambers, diameter $1\frac{7}{8}$ " Minimum thickness $\frac{3}{16}$ " Are they galvanised externally ✓

How are they arranged in the chambers on Sides and Roof

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers hot brine.

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

FOR SWAN, HUNTER & WIGHAM RICHARDSON, LTD.

W. H. Morrison Builders. DIRECTOR

Plans. Are approved Plans & Specifications forwarded herewith for the Refrigerating Machinery (If not, state date of approval) ✓

Is the Refrigerating Machinery and Appliances duplicate of a previous case Yes

If so, state name of vessel

AMRA good to 1570-98896 ASKA. " " 1596-97699. ✓ AMRA 1570

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 Refrigerating machinery and insulated cargo chambers were constructed and installed under special survey, and the materials and workmanship are good.

The installation was tested satisfactorily under working conditions and is eligible, in our opinion, for the notation + LLOYD'S R.M.C. 3.41.

The plan & specification approved for ASKA, SHANK YARD No 1596 are returned herewith.

It is submitted that this vessel is eligible for THE RECORD.

+ Lloyd's R.M.C. 3.41

31/3/41

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.
2.	4	Carb. Amhy.	J. & E. Hall, Ls	1941	(1) Brine (2) Slab cork	15.	Yes.	4	4520

Fee £ 6: 0: 0 Travelling Expenses £ : : Fee applied for, Received by me, 19

TUE 1 APR 1941

Committee's Minute

Assigned

+ Lloyd's R.M.C. 3.41

A. Watt

E. H. Dean.

Surveyors to Lloyd's Register.



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