

# Report on Refrigerating Machinery and Appliances.

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No. in

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06385-56416.

(Number of Visits 41)on the Refrigerating Machinery and Appliances of the Trawler "C O R V I N A"Tons { Gross 211  
Net 109 48Vessel built at Hamburg. By whom built H. Bradenburg Yard No. -- When built 1906.Owners JOSE MARIA CASTAGNINO. Port belonging to BUENOS AIRES. Voyage Brasil.Ford. 28969 1926.Refrigerating Machinery made by York Mfg. Co. Machine Aft. 15532 When made 1922.Taller de Marina de Darsena Norte.Insulation fitted by 7 When fitted 1945. System of Refrigeration Ammonia.Method of cooling Cargo Chambers Direct Expansion and Air Insulating Material used Slab and Granulated Cork.Number of Cargo Chambers insulated Two (2) Total refrigerated cargo capacity 12,800 cubic feetDESCRIPTION OF REFRIGERATING MACHINERY. Where placed Steel deck house on upper Deck, Port side above boiler space.Refrigerating Units, No. of Two (2) No. of machines Two (2) Is each machine independent Yes.Stated 14 and 8 total 22 tons (American Unit)Total refrigeration or ice-melting capacity in tons per 24 hours 7 Are all the units connected to all the refrigerated chambers Yes.Compressors, driven direct or through reduction gearing. Compressors, single or double acting Single If multiple effect compression No.Are relief valves or safety discs fitted Yes. No. of cylinders to each unit Two (2) Diameter of cylinders Aft. 5".Diameter of piston rod -- Length of stroke Aft. 5". No. of revolutions per minute 360 maxm.Motive Power supplied from One (1) Scotch Boiler.

(State number of boilers, oil engines or electric generators supplying the motive power.)

Ford. Engine-Single Cyl. diam. 7" x 10" stroke. (Makers Geo Blake Mfg. Co. New York.Steam Engines, high pressure, compound or triple expansion, surface condensing. No. of cylinders -- Diameter --After Engine- compound 5 1/2, 12" x 8" stroke. Ford. E. -3 1/2"Length of stroke -- Working pressure 180 lbs. sq. in. Diameter of crank shaft journals and pins Aft. E. 2 3/4".Breadth and thickness of crank webs 1 No. of sections in crank shaft one. Revolutions of engines per minute 360 maxm.Oil Engines, type Ford. 2 1/2" x 8". Art. 1 5/8" x 4 1/2" 4 stroke cycle one. Single or double acting -- B.H.P. --No. of cylinder -- 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 --Aft. 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, hot welded or riveted longitudinal joint -- Material -- Range of tensile strength -- Working pressure by Rules --Electric Motors, type -- No. of -- Rated -- Kilowatts -- Volts ---- revolutions per minute. Diameter of motor shafts at bearings --Reduction 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 Two (2) Cast iron or steel casings Steel. Cylindrical or rectangular -- Are safety valves fitted --each 28 tubes, 1" diam. int. x 9'-11" condenser --to casings Yes No. of coils in each -- Material of coils -- Can each coil be readily shut off or disconnected YesSanitary pump off M.E. 1-horiz. duplex pump 5 1/2" x 4 3/4" x 5" 2-SuctionWater Circulating Pumps, No. and size of pumps available. how worked -- Gas Separators, No. of 1-delivery.2-High speed centrifugal pumps driven by 1 1/2 H.P. electric motor.Gas Evaporators, No. of -- Cast iron or steel casings -- Pressure or gravity type -- If pressure type, are safetyvalves fitted -- No. of coils in each casing -- Material of coils -- Can each coil be readily shut off or disconnected Yes.Direct Expansion or Brine Cooled Batteries, No. of Two (2) Are there two separate systems, so that one may be in use while the other is beingcleared of snow Yes. No. of coils in each battery 3 Material of coils Solid drawn Can each coil be readily shut off ordisconnected Yes. Total cooling surface of battery coils Approx: 2,500 ft. of 1 1/2" int. diam. Is a watertight tray fitted under each battery Yes.Air Circulating Fans, Total No. of 2 each of -- cubic feet capacity, at 1,400 revolutions per minuteSteam or electrically driven Elect. 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 -- how worked --Brine Cooling System, closed or open -- Are the pipes and tanks galvanised on the inside --No. of brine sections in each chamber --

NOT THE WORDS WHICH DO NOT APPLY SHOULD BE DELETED.



Are thermometers fitted to the outflow and to each return brine pipe -- 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 **Yes.**

## HYDRAULIC AND OTHER TESTS.

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure	Air Test Pressure.	Stamped.	REMARKS.
Engine Cylinders (if tested) ...	--	--	--	--		
Gas Compressors (Connections) 6-2-45.	6-2-45.		600 lbs.	--	W.R.	Satisfactory.
Separators ...	16-1-45.		600 lbs.		W.R.	"
Liquid. Multiple Effect Receivers ...	16-1-45.		600 lbs.		W.R.	"
Condenser Coils ...	5-1-45.		500 lbs.		W.R.	"
Evaporator Coils ...	various dates 12-44.		1200 lbs.		W.R.	"
Condenser Headers and Connections 6-2-45.	6-2-45.		500 lbs.		W.R.	"
Condenser Casing Shell. 5-1-45.	5-1-45.		500 lbs.		W.R.	"
Evaporator Casings ...	--		--	--	--	--
NH <sub>3</sub> Condenser, Evaporator and Air Cooler Coils after erection in place 14-2-45.	14-2-45.		--	200 lbs.	--	Satisfactory.
Cooler coils & leads. 7-2-45.	7-2-45.		400	--	--	"

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 21st. to 23rd. Feb. 1945. Density of Brine -- by -- hydrometer

Temperatures (when the cargo chambers are cooled down to the required test temperatures) of delivery and return air at direct expansion or brine cooled batteries -- & --, outflow and return brine -- & --

atmosphere. 82°F cooling water inlet and discharge 84°F & 87°F. gas in condensers 96°F and evaporators -9°F.

N<sup>o</sup>1 hold +11°F, N<sup>o</sup>2 +9°F.

the average temperature of the refrigerated chambers. -- and the rise of temperature in these chambers upon the expiration of 12 hours daylight.

time after the machinery and cooling appliances have been shut off. N<sup>o</sup>1 Hold +41°F, N<sup>o</sup>2 Hold +38°F.

Actual cooling down test from 7.0 am to 7.0 pm Shade temperature 92°F. Maxm. 78°F. minimum.

## SPARE GEAR.

Are the working parts of the machines, pumps and motors respectively, interchangeable **No.**

Has the spare gear required by the Rules been supplied **Yes.**

Additional Spare Gear Supplied: Vessel engaged on Coastwise Service to Brazil.

A complete circulating pump water end supplied.

One electric motor complete for air circulating fans supplied (2 H.P. motor, suitable for either N<sup>o</sup>1 or N<sup>o</sup>2 hold).

## PARTICULARS OF ELECTRIC MOTORS ETC.

<b>Motors for air circulating fans.</b>	<b>Motors for water circulating pumps.</b>
Motor for N <sup>o</sup> 2 hold- N <sup>o</sup> 8190784.	Makers- HERQ, S.H.C. Buenos Aires.
Motor for spare N <sup>o</sup> 3468081	Type R.C. 24.
Makers A.E.G. Cont. current.	Volts 220. R.P.M. 2,800
Type V G N 15.	H.P. 1.5 - 2 off.
Volts 220, Amps 8.8.	Both pumps located starb. side of Engine Room.
H.P. 2. K.W. 1.5. RPM 1400.	All motors satisfactorily tested.
Motor for N <sup>o</sup> 1 Hold.	All piping is solid drawn steel (imported),
Makers, Sachsenwerk Medersdilitz.	and all valves, connections and fittings are of
Dresden, Germany.	steel, satisfactorily tested.
N <sup>o</sup> 364727.	The separators, liquid receiver, condensers,
Type E G 10	headers, etc. fabricated from tested steel plates
Volts 220, Amps 4.82, KW. 7.	and the welding work employed is in conformity
H.P. 1.	with the Rules.

The foregoing is a correct description of the Refrigerating Machinery.

Manufacturer.

## 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. 11 (Fore Peak)	A	--	1" T & G. Cork. Slab.	5"	-	<b>NOTES.</b>				
Frame No. 33	F	--	1" T & G. Cork. Slab.	3"		<b>Direct Expansion Batteries and fans:-</b>				
No. 1 Hold.	A	--	1" T & G. Cork. Slab.	3"		located in strongly constructed steel				
Frame No. (F)						deck house on upper deck between Nos.				
Frame No. (A)						1 & 2 hatchways, 10'0" long x 16'-3"				
Frame No. (F)						breadth and 6'-8" high. Deck house				
Frame No. (A)						divided into two separate compartments				
N <sup>o</sup> 2 Hold.	F	1 1/2"	1" T & G. Cork. Slab.	4"	1/2" T & G.	by a transverse steel casing immediately				
Frame No. 57 (Boiler Room)	A	--	Asbestos lagging 2" thick.			ly above bulkhead between Nos. 1 & 2				
Frame No. (Engine Room)	A	--				insulated holds.				
Frame No. (F)						Insulation of overhanging sides and				
Frame No. (A)						four (4) insulated steel water tight				
Frame No. (F)						doors- Slab cork 6" thick, with 3"				
Frame No. (A)						slab cork on each side of partition				
Frame No. (F)						casing.				
Frame No. (A)						Outer lining T & G boards 1" thick.				
Frame No. (After Peak)	F	--	Gran. Cork. Slab.	1 1/2"		The expansion batteries have closely				
Sides ...			1" T & G. Cork. Slab.	4"	1/2" T & G.	pitched vertical grids at right angles				
Overhanging ...			1" T & G. Cork. Slab.	4"	1/2" T & G.	to the direction of air flow.				
Floors of Chambers ...			1" T & G. Cork. Slab.	4"	1/2" T & G.	2 drawings 1" T & G.				
Bitumastic on tank top plating.										
Transverse grounds. 5 1/2 x 1 3/4.										
Thrust Recess, Sides and Top										
Tunnel Sides and Top										
Tunnel Recess, Front and Top										

Frames or Reverse Frames, Face. (Framing depth 3" - 3" slab cork over face of rev. frames.)

Bulkhead Stiffeners, Top Minimum 3" slab. Bottom Cork over face.

Subsidiary on Top of Decks --

Side Stringers, Top 3" cork, minimum. Bottom 3" cork minimum and Face 3" cork minimum.

Web Frames, Sides -- and Face --

Upp. Dk. Brackets, Top Minimum 3" cork over face. Bottom -- and Face --

Insulated Hatches, Main 6" Slab & Gran. Cork. Bilge 5" Slab & Gran. Cork. Manhole 1" Slab & Gran. Cork.

Hatchway Coamings, Main 1 1/2" W.P. Galv. iron facing. --

Hold Pillars (H 4 3/4 x 3 1/2) outside dimensions of outer lining 8 1/2 x 8 1/2 filled with granulated cork.

Masts -- Ventilators --

Are insulated plugs fitted to provide easy access to bilge suction roses **Yes.** tank, air, and sounding pipes **Yes.** heads of pillars (all E.W.)

and manhole doors of tanks **Yes.** Are insulated plugs fitted to ventilators -- cargo ports -- and side lights --

Is the insulation of the lower hold floor and tank top in way of the hatchways protected **Yes.** if so, how **also slings landed on portable platform.**

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. -- 1/2"

and for draining the tank top. 1" bitumastic on tank top plating and 1" air space.

Fireproof Insulation. Is the insulation and woodwork fireproof in way of bunkers or any surfaces exposed to excessive heat **Yes.** Where

Cooling Pipes pass through the bulkhead 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 1 1/2 spaced 27" on airtrunks floors portable dunnage, and top --

fixed or portable. -- Are screens fitted over the brine grids at chamber sides. -- hinged or permanently fixed

Thermometer Tubes, No. and position in each chamber N<sup>o</sup>1 Hold (1 fwd. 1 aft) N<sup>o</sup>2 Hold (1 fwd. 1 middle, 1 aft).

diameter. 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. N<sup>o</sup>1 Hold 1 P & S 2" scupper to bilge. N<sup>o</sup>2 Hold 2 P & S 2" scupper to bilge. Fitted with non-return valve and bend for brine sealing.

What provision is made for draining the refrigerating machinery room. Into machinery space bilges with accessible control valve Fan Room overboard with valve operating from upper deck

Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers. **Yes.**



2 bilge and 2 Dpuble bottom tank sounding pipes in each compartment (well Sounding Pipes, No. and position in each chamber situated below the load water line..... insulated).

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. --

How is the expanded metal secured in place --- Slab cork wedged in tight and set together with odorless bituminous compound secured to inner wood lining by galvanized nails and cane skewers as necessary.

How are the cork slabs secured to the steel structure of the vessel. necessary.

Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans. Yes.

Are they permanently fixed or collapsible, or portable. Permanently fixed.

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. -- Minimum thickness. -- Are they galvanised externally. --

How are they arranged in the chambers. -- (Suction and delivery leads from refrigerating machines to Fan and battery room are on the port side of N°2 hold overhead, and well insulated.

Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers. Battery Hot gas connection, with double shut off valves.

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

Builders.

See Secretary letter dated S- 4.1.45.

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery. -- and Insulation. -- (If not, state date of approval)

Is the Refrigerating Machinery and Appliances duplicate of a previous case. -- 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 machinery and appliances have been effeciently fitted in the vessel in general conformity with the Rules. Materials and workmanship are good. On completion the installation was tested under working conditions with satisfactory results and is eligible in my opinion for notation in the Register

Book LLOYD'S R.M.C. 3,45.

NOTES:- Both refrigerating machines and steam engines were completely opened up in the shop, reconditioned and placed in good working order. -

System of Air circulation. For full length of each side of the chamber between the deck head and upper side stringer an air trunkway is fitted for suction and delivery, approx: 14 1/2" wide by 41" deep. Two rows of air ports are arranged at the sides and one row at bottom of the air trunkways, the air ports 8" by 4" being staggered and suitably spaced.

It is submitted that this vessel is eligible for THE RECORD. LLOYD'S RME 3.45

Boeth 14/8/45

PARTICULARS TO BE ENTERED IN REGISTER BOOK. Ford unit made 1926 refitted 1945. (x) After unit made 1922 refitted 1945.

REFRIGERATING MACHINES.					System of (1) Refrigerating (2) Insulating the Chambers.	Amer (+) Ice melting capacity per 24 hours. Unit. Tons.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.				No.	Capacity. Cubic ft.
2 ✓	4 ✓	Ammonia.	York Mfg. Co.	(x)	Direct Expansion and Air Granulated & Slab Cork.	22(+)	No.	2 ✓	12,800

Fee 1428.00 (Fee applied for, 7-4- 19. 45.

Turveying Expenses 30.00 (Received by me, 7- 4- 19. 45.

FRI. 17 AUG 1945

Committee's Minute

Assigned

Lloyd's Amel 3.45

W.R. Loni Rennie. Surveyor to Lloyd's Register.



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