

No. 1800

THE BRITISH CORPORATION FOR THE SURVEY

TRANSFERRED TO
L.R. SYSTEM
LAND

W.H.

REGISTRY OF SHIPPING.

Report No.

2121

No. in Register Book

3476.

ETMOR

EX

M.S.

MELINGA

Makers of Engines *BURMEISTER & WAIN. COPENHAGEN.*

Works No. *1397.*

Makers of Main Boilers

Works No.

Makers of Donkey Boiler

Works No.

MACHINERY.



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002978-002988-0066

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office *24th February 1928*

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ^{Single Triple} _{Twin Quadruple} Screw OIL MOTOR SHIP

"MELINGA"

Official No. Port of Registry *SYDNEY.*

Registered Owners *NORTH COAST STEAM NAVIGATION.*

Engines Built by *BURMEISTER & WAIN.*

at *COPENHAGEN.*

Main Boilers Built by

at

Donkey " " "

at

Date of Completion

First Visit *28/7 1927.* Last Visit *21/2 1928* Total Visits *40*



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INTERNAL COMBUSTION-ENGINE.RECIPROCATING ENGINESWorks No. 1397. No. of Sets 1. Description FOUR STROKE CYCLE, SINGLEACTING, FORCED LUBRICATED, DIRECT REVERSIBLE DIESEL ENGINE. TRUNK PISTON
TYPE.

No. of Cylinders each Engine 6 No. of Cranks 6
 Diars. of Cylinders 330 ¹/₄ Stroke 600 ¹/₄
 Cubic feet in each ~~Top~~ Cylinder 1.8.
 Are Spring-loaded Relief Valves fitted to Top and ~~Bottom~~ of each Cylr.? YES.
 " " " each Receiver?
 Type of H.P. Valves,
 " 1st I.P. "
 " 2nd I.P. "
 " L.P. "
 " Valve Gear
 " Condenser Cooling Surface sq. ft.
 Diameter of Piston Rods (plain part) 110 ¹/₄ Screwed part (bottom of thread)
 Material "
 Diar. of Connecting Rods (smallest part) 110 ¹/₄ Material S.M.S.
 " Crosshead Gudgeons 120 ¹/₄ Length of Bearing 180 ¹/₄ Material —
 No. of Crosshead Bolts (each) Diar. over Thrd. Thrds. per inch Material
 " Crank Pin " " 4. " 1 ⁷/₈" " 4 ¹/₂" " S.M.S.
 " Main Bearings 9. Lengths 158 ¹/₄
 " Bolts in each Diar. over Thread Threads per inch Material
 " Holding Down Bolts, each Engine 66. Diar. 1" No. of Metal Chocks —
 Are the Engines bolted to the Tank Top or to a Built Seat? BOLTED TO BUILT SEAT.
 Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? —
 If not, how are they fitted? —

Connecting Rods, Forged by Mrs. BURMEISTER & WAIN.

Piston " "

Crossheads,

Connecting Rods, Finished by — " —

Piston " "

Crossheads, "

Date of Harbour Trial 14-16/2 1928." Trial Trip 17/2 1928.Trials run at PresinaWere the Engines tested to full power under Sea-going conditions? yes.If so, what was the L.H.P.? 450/550

Pressure in 1st I.P. Receiver, lbs., 2nd I.P.,

Revs. per min. 190/205
lbs., Vacuum, ins.Speed on Trial 9 to 9.9 Knots.

If the Conditions on Trial were such that full power records were not obtained give the following estimated data:—

Builders' estimated L.H.P. 450.Revs. per min. 190Estimated Speed 9 Knots

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Works No. 1397.

ACTING, FORCED LUBRICATED TYPE.

No. of Cylinders each Engine

Diams of Cylinders 330

Cubic feet in each Cyl.

Are Spring-loaded Relief Valves

Type of H.P. Valves

1st L.P.

2nd L.P.

L.P.

Valve Gear

Condenser

Diameter of Piston Rods (pl)

Material

Diam. of Connecting Rods (sm)

Crosshead Gudgeons

No. of Crosshead Bolts (each)

Crank Pin

Main Bearings

Bolts in each

Holding Down Bolts

Are the Engines bolted to the

Are the Bolts tapped through

If not, how are they fitted?

TURBINE ENGINES.

Works No. Type of Turbines

No. of H.P. Turbines No. of I.P. No. of L.P. No. of Astern

Are the Propeller Shafts driven direct by the Turbines or through Gearing?

Is Single or Double Reduction Gear employed?

Diam. of 1st Reduction Pinion } Width Pitch of Teeth

" 1st " Wheel

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion } Width Pitch of Teeth

" 2nd " Wheel

Estimated Pressure per lineal inch

Revs. per min. of H.P. Turbines at Full Power S.H.P.

" " I.P. " "

" " L.P. " "

" " 1st Reduction Shaft

" " 2nd " "

" " Propeller Shaft

Total Shaft Horse Power

Date of Harbour Trial

" Trial Trip

Trials run at

Speed on Trial Knots Propeller Revs. per min. S.H.P.

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

The British Corporation for the Survey and Registry of Shipping.

54 FEB 1929

INTERNAL COMBUSTION ENGINES.

Vessel's Name, *Albion*

Built by *A/S. Burmeister & Wain, Copenhagen.* Ship No. *546.*

ENGINES, Single or Twin-Screw, *single.* Estimated B.H.P., *340*

Built by *A/S Burmeister & Wain, Copenhagen.* Works No., *1397.*

Description, *four stroke cycle, single acting, forced lubricated, direct reversible. Diesel engine. Trunk piston type.*

No. of Working Cylinders (each Engine), *6* Cub. Ft., each Cyl., *1.8*

Diam. of " *330mm = 13"* Stroke, *600mm = 23.6"* Estimated Revs. per Min., *185*

Diam. of Crank Shaft (made), *204mm* Thrust, *204mm* Intermed., *6 1/2"* Propeller, *7"*

" " (by rule), *199mm* " *5.9"* " *5.6"* " *6.2"*

No. of Main Bearings, *8* Length, *158mm* Dist. between Edges, *402mm*

Thickness of Web (made), *120mm* Breadth of Web, *450mm*

" " (by rule), " " " "

Diam. of Propellers, *7'-0"* Pitch, *5'-6"* Surface (each), *12,6 sq ft*

Coeff. of Displacement at 4/5th Mld. Depth, *0.701.*

Max. Initial Working Pressure, *500 lbs/sq inch.* Estimated Mean Pressure, *100 lbs/sq inch*

No. of Scavenging Pumps, *none* Diam., — Stroke, —

Description,

Pressure of Scavenging Air, —

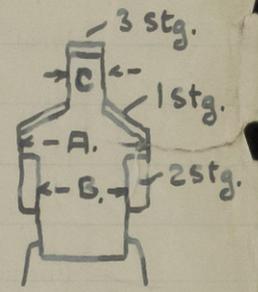
No. of Main Air Compressors, *1* No. of Stages (each), *3*

Stage 1:—Diam., *320mm A.* Stroke, *250mm* Pressure, *5 kg/cm²*

Stage 2:— " *280mm B.* " *250mm* " *25 kg/cm²*

Stage 3:— " *63mm C.* " *250mm* " *65 kg/cm²*

Description, *see sketch.*



Vertical, single acting, three stage compressor, coupled direct to main motor and forced lubricated.

No. of Auxiliary Air Compressors, *1* No. of Stages (each), *3*

Stage 1:—Diam., *210mm A.* Stroke, *216mm* Pressure, *5 kg/cm²*

Stage 2:— " *176mm B.* " *216mm* " *22 kg/cm²*

Stage 3:— " *45mm C* " *216mm* " *65 kg/cm²*

Description, *see sketch:*

Vertical, single acting, three stage compressor, coupled direct to auxiliary motor.

No. of Emergency air Compressor, *1* No. of Stages, *2*

Stage 1:—Diam., *90mm.* Stroke, *120*

Stage 2:— " *35mm* " *120*

TURBO-ELECTRIC PROPELLING MACHINERY.

No. of Turbo-Generating Sets Capacity of each

Type of Turbines employed

Description of Generators

No. of Motors driving Propeller Shafting

Are the Propeller Shafts driven direct by the Motors or through Gearing?

Is Single or Double Reduction Gear employed?

Description of Motors

Diar. of 1st Reduction Pinion } Width Pitch of Teeth
 " 1st " Wheel

Estimated Pressure per lineal inch

Diar. of 2nd Reduction Pinion } Width Pitch of Teeth
 " 2nd " Wheel

Estimated Pressure per lineal inch

Revs. per min. of Generators at Full Power

 " Motors "

 " 1st Reduction Shaft

 " 2nd "

 " Propellers at Full Power

Total Shaft Horse Power

Date of Harbour Trial

 " Trial Trip

Trials run at

Speed on Trial Knots. Propeller Revs. per min. S.H.P.

Makers of Turbines

" Generators

" Motors

" Reduction Gear

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.



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SHAFTING.

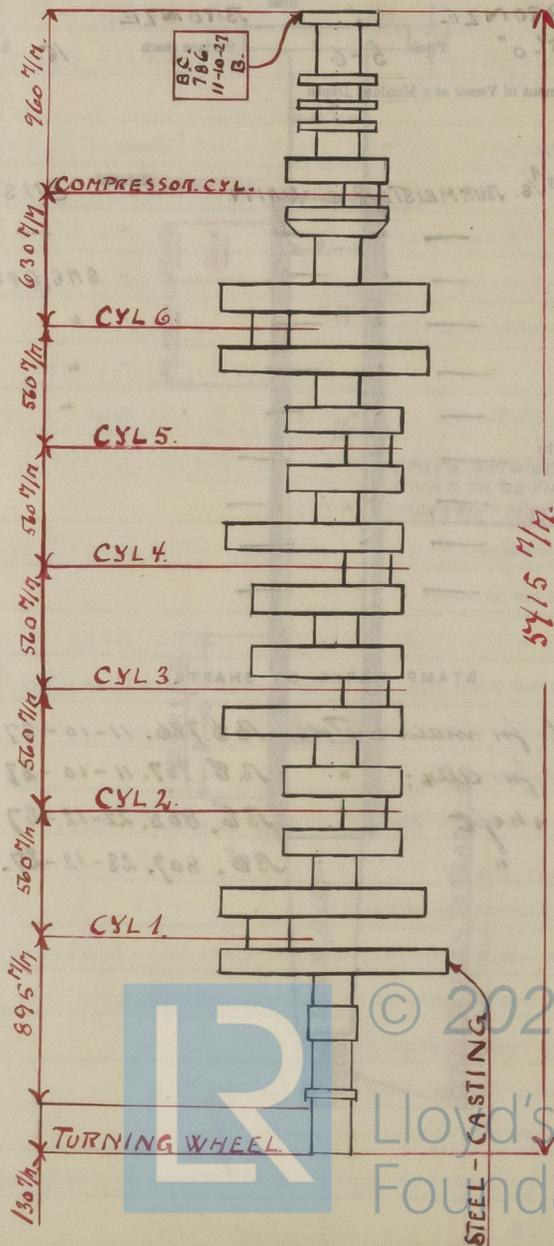
Are the Crank Shafts Built or Solid? **BUILT.**No. of Lengths in each **1.**Angle of Cranks **120°**Diar. by Rule **199 mm.** Actual **204 mm.** In Way of Webs **212 mm.**" of Crank Pins **220 mm.** Length between Webs **154 mm.**Greatest Width of Crank Webs **450 mm.** Thickness **120 mm.**Least " " **450 -** " **104 -**Diar. of Keys in Crank Webs **25 -** Length **52 -**

" Dowels in Crank Pins Length Screwed or Plain

No. of Bolts each Coupling **8.** Diar. at Mid Length **47 mm.** Diar. of Pitch Circle **300 mm.**Greatest Distance from Edge of Main Bearing to Crank Web **4 mm.**Type of Thrust Blocks **B&W. TYPE. FORCED LUBRICATED.**No. " Rings **2015.**Diar. of Thrust Shafts at bottom of Collars **204 mm.** No. of Collars **3.**" " Forward Coupling **-** At Aft Coupling **204 mm.**Diar. of Intermediate Shafting by Rule **5.6"** Actual **6 1/4"** No. of Lengths **1.**No. of Bolts, each Coupling **6-8.** Diar. at Mid Length **47 mm.** Diar. of Pitch Circle **10 1/2"**Diar. of Propeller Shafts by Rule **6.18"** Actual **7"** At Couplings **6 7/8"**Are Propeller Shafts fitted with Continuous Brass Liners? **YES.**Diar. over Liners **8 1/8" - 8 1/4"** Length of After Bearings **3'-0"**Of what Material are the After Bearings composed? **LIGNUM VITAE BRASS BUSH.**Are Means provided for lubricating the After Bearings with Oil? **YES.**" " to prevent Sea Water entering the Stern Tubes? **NO.**

If so, what Type is adopted?

SKETCH OF CRANK SHAFT.



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No. of Blades each Propeller

4.

Fitted or Solid?

SOLID.

Material of Blades

BRONZE

Boss

BRONZE.

Diar. of Propellers

7'-0"

Pitch

5'-6"

Surface (each)

16. S. ft.

Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth

Crank Shafts Forged by

 $\frac{1}{8}$.

BURMEISTER & WAIN.

Material

S.M.S.

Pins

— " —

— " —

Webs

— " —

— " S.M.S. CASTING.

Thrust Shafts

— " —

— " —

Intermed. "

— " —

— " —

Propeller "

— " —

— " —

Crank " Finished by

— " —

— " —

Thrust "

— " —

— " —

Intermed. "

— " —

— " —

Propeller "

— " —

— " —

STAMP MARKS ON SHAFTS.

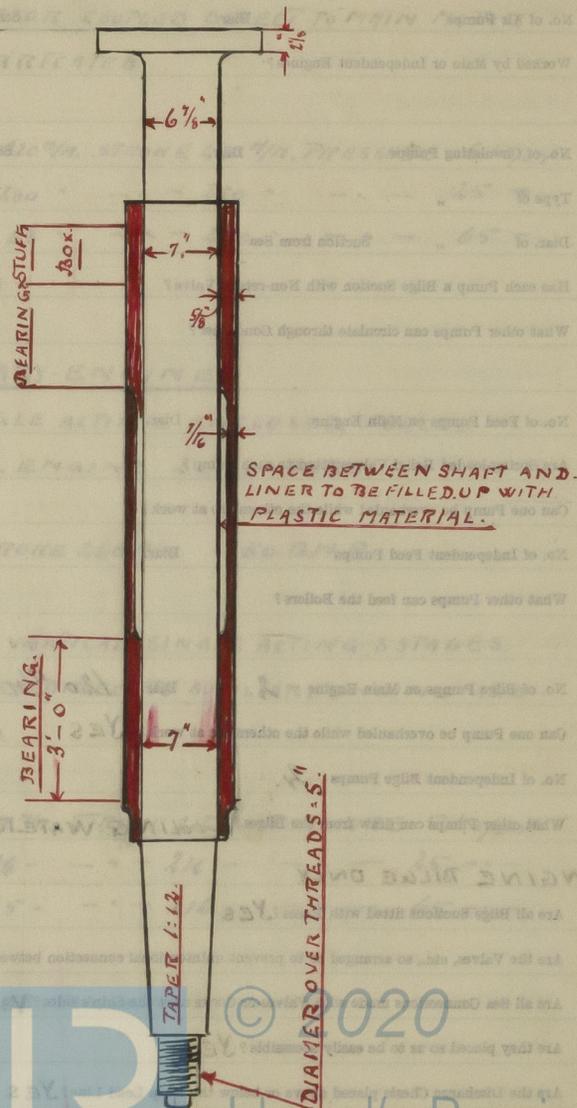
Crank's shaft for main mot. B.C. 786. 11-10-27.

" " for aux: " B.C. 787. 11-10-27

Intermediate shaft B.C. 808. 22-12-27

Propeller " B.C. 807. 23-12-27.

SKETCH OF PROPELLER SHAFT.



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PUMPS, ETC.

No. of Air Pumps Diar. Stroke
 Worked by Main or Independent Engines?

No. of Circulating Pumps Diar. Stroke
 Type of "
 Diar. of " Suction from Sea
 Has each Pump a Bilge Suction with Non-return Valve? Diar.
 What other Pumps can circulate through Condenser?

No. of Feed Pumps on Main Engine Diar. Stroke
 Are Spring-loaded Relief Valves fitted to each Pump?
 Can one Pump be overhauled while the others are at work?
 No. of Independent Feed Pumps Diar. Stroke
 What other Pumps can feed the Boilers?

No. of Bilge Pumps on Main Engine 2. Diar. 120 ^m/_m Stroke 120 ^m/_m
 Can one Pump be overhauled while the others are at work? YES
 No. of Independent Bilge Pumps 2.
 What other Pumps can draw from the Bilges? COOLING-WATER-PUMP

ENGINE BILGE ONLY.

Are all Bilge Suctions fitted with Roses? YES
 Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges? YES.
 Are all Sea Connections made with Valves or Cocks next the Ship's sides? VALVES.
 Are they placed so as to be easily accessible? YES
 Are the Discharge Chests placed above or below the Deep Load Line? YES.
 Are they fitted direct to the Hull Plating and easily accessible? YES.
 Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges on the Outside? YES.

I. MAIN AIR COMPRESSOR, VERTICAL, SINGLE ACTING
 3. STAGE COMPRESSOR COUPLED DIRECT TO MAIN MOTOR
 AND FORCED LUBRICATED.

STAGE I DIAR. 320 ^m/_m. STROKE 250 ^m/_m. PRESSURE 5 kg/cm².

" II " 280 " " " 250 " " " 25 "

" III " 63 " " " 250 " " " 65 "

AUXILIARY-ENGINE.

I. FOURCYCLE, SINGLE ACTING ENCLOSED, FORCED
 LUBRICATED. DIESEL ENGINE 3 CYLINDERS.

DIAR: 230 ^m/_m. STROKE 260 ^m/_m. - 50 B.H.P.

I. AIR COMPRESSOR, VERTICAL SINGLE ACTING 3 STAGES.
 COMPRESSOR COUPLED DIRECT TO AUXILIARY ENGINE AND
 FORCED LUBRICATED.

STAGE I. DIAR. 210 ^m/_m. STROKE 216 ^m/_m. PRESSURE 5 kg/cm².

" II " 176 " " " 216 " " " 25 "

" III " 45 " " " 216 " " " 65 "

II. 4. STAGE COMPRESSOR. DRIVEN BY HAND.



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BOILERS.

Works No.

No. of Boilers Type

Single or Double-ended

No. of Furnaces in each

Type of Furnaces

Date when Plan approved

Approved Working Pressure

Hydraulic Test Pressure

Date of Hydraulic Test

„ when Safety Valves set

Pressure at which Valves were set

Date of Accumulation Test

Maximum Pressure under Accumulation Test

System of Draught

Can Boilers be worked separately?

Makers of Plates

„ Stay Bars

„ Rivets

„ Furnaces

Greatest Internal Diam. of Boilers

„ „ Length „

Square Feet of Heating Surface each Boiler

„ „ Grate „ „

No. of Safety Valves each Boiler Rule Diam. Actual

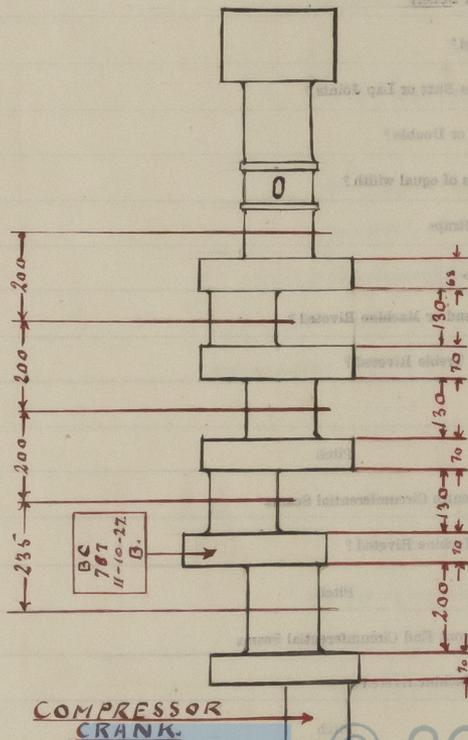
Are the Safety Valves fitted with Easing Gear?

No. of Pressure Gauges, each Boiler No. of Water Gauges

„ Test Cocks „ Salinometer Cocks

AUXILIARY-ENGINE.

SKETCH OF CRANK-SHAFT.
AUXILIARY-MOTOR.



COMPRESSOR
CRANK.



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Are the Water Gauges fitted direct to the Boiler Shells or mounted on Pillars?

Are the Water Gauge Pillars fitted direct to the Boiler Shells or connected by Pipes?

Are these Pipes connected to Boilers by Cocks or Valves?

Are Blow-off Cocks or Valves fitted on Boiler Shells?

No. of Strakes of Shell Plating in each Boiler

Plates in each Strake

Thickness of Shell Plates Approved

in Boilers

Are the Rivets Iron or Steel?

Are the Longitudinal Seams Butt or Lap Joints?

Are the Butt Straps Single or Double?

Are the Double Butt Straps of equal width?

Thickness of outside Butt Straps

inside

Are Longitudinal Seams Hand or Machine Riveted?

Are they Single, Double, or Treble Riveted?

No. of Rivets in a Pitch

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Centre Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

No. of Rows of Rivets in Front End Circumferential Seams

Are these Seams Hand or Machine riveted?

Diar. of Rivet Holes Pitch

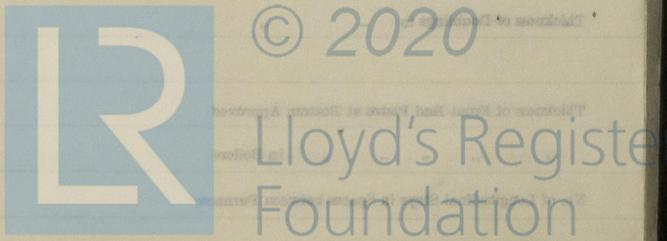
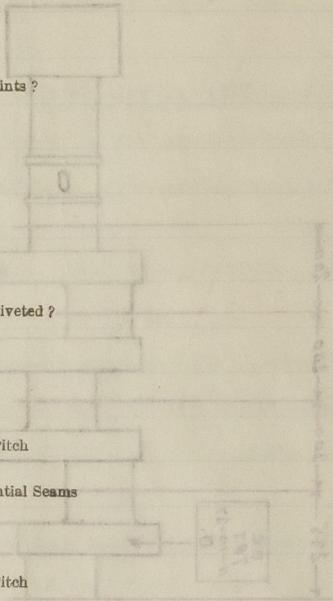
No. of Rows of Rivets in Back End Circumferential Seams

Are these Seams Hand or Machine Riveted?

Diar. of Rivet Holes Pitch

Size of Manholes in Shell

Dimensions of Compensating Rings



Thickness of End Plates in Steam Space Approved

" " " " " in Boilers

Pitch of Steam Space Stays

Diar. " " " " Approved Threads per Inch

" " " " " in Boilers "

Material of " " "

How are Stays Secured ?

Diar. and Thickness of Loose Washers on End Plates

" " Riveted " " "

Width " " Doubling Strips "

Thickness of Middle Back End Plates Approved

" " " " " in Boilers

Thickness of Doublings in Wide Spaces between Fireboxes

Pitch of Stays at " " " "

Diar. of Stays Approved Threads per Inch

" " in Boilers "

Material "

Are Stays fitted with Nuts outside ?

Thickness of Back End Plates at Bottom Approved

" " " " " in Boilers

Pitch of Stays at Wide Spaces between Fireboxes

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

" " " " " in Boilers

No. of Longitudinal Stays in Spaces between Furnaces



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Diar. of Stays Approved Threads per Inch

 " " in Boilers

Material "

Thickness of Front Tube Plates Approved

 " " " " in Boilers

Pitch of Stay Tubes at Spaces between Stacks of Tubes

Thickness of Doublings in " " "

 " Stay Tubes at " " "

Are Stay Tubes fitted with Nuts at Front End?

Thickness of Back Tube Plates Approved

 " " " in Boilers

Pitch of Stay Tubes in Back Tube Plates

 " Plain "

Thickness of Stay Tubes

 " Plain "

External Diar. of Tubes

Material "

Thickness of Furnace Plates Approved

 " " " in Boilers

Smallest outside Diar. of Furnaces

Length between Tube Plates

Width of Combustion Chambers (Front to Back)

Thickness of " " Tops Approved

 " " " in Boilers

Pitch of Screwed Stays in C.C. Tops



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Diar. of Screwed Stays Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Sides Approved

" " " " in Boilers

Pitch of Screwed Stays in C.C. Sides

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Thickness of Combustion Chamber Backs Approved

" " " " in Boilers

Pitch of Screwed Stays in C.O. Backs

Diar. " " Approved Threads per Inch

" " " in Boilers

Material " "

Are all Screwed Stays fitted with Nuts inside C.O.?

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wing Chamber

" " " Centre "

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes, each Boiler

Size of Lower Manholes

VERTICAL DONKEY BOILERS

No. of Boilers Type
 Greatest Int. Dia. Height
 Height of Boiler Crown above Fire Grate
 Are Boiler Crowns Flat or Dished?
 Internal Radius of Dished Boilers
 Description of Braces in Boiler Crowns
 Dist. of Rivet Holes Type
 Height of Rivet Crowns above Fire Grate
 Are Rivet Crowns Flat or Dished?
 External Radius of Dished Crowns
 No. of Crown Ribs
 External Dia. of Tubes at Top Bottom
 Thickness of Plates
 No. of Water Tubes
 Material of Water Tubes
 Size of Manhole in Shell
 Dimensions of Compression Ring
 Location outside each boiler (state distance)

SUPERHEATERS

Description of Superheaters
 Weight raised
 When heated
 Can expansion be taken care of by water
 No. of Safety Valves on each Superheater
 Date of Examination



VERTICAL DONKEY BOILERS.

No. of Boilers	Type		
Greatest Int. Diar.		Height	
Height of Boiler Crown above Fire Grate			
Are Boiler Crowns Flat or Dished?			
Internal Radius of Dished Ends		Thickness of Plates	
Description of Seams in Boiler Crowns			
Diar. of Rivet Holes	Pitch	Width of Overlap	
Height of Firebox Crowns above Fire Grate			
Are Firebox Crowns Flat or Dished?			
External Radius of Dished Crowns		Thickness of Plates	
No. of Crown Stays	Diar.	Material	
External Diar. of Firebox at Top		Bottom	Thickness of Plates
No. of Water Tubes	Ext. Diar.	Thickness	
Material of Water Tubes			
Size of Manhole in Shell			
Dimensions of Compensating Ring			
Heating Surface, each Boiler		Grate Surface	

SUPERHEATERS.

Description of Superheaters	
Where situated?	
Which Boilers are connected to Superheaters?	
Can Superheaters be shut off while Boilers are working?	
No. of Safety Valves on each Superheater	Diar.
Are " " fitted with Easing Gear?	
Date of Hydraulic Test	Test Pressure
Date when Safety Valves set	Pressure on Valves

MAIN STEAM PIPES



SPARE GEAR

No. of Top End Bolts.	No. of Bot. End Bolts.	No. of Cylinder Cover Studs
" Coupling Bolts	" Main Bearing Bolts	" Valve Chest "
" Junk Ring Bolts	" Feed Pump Valves	" Bilge Pump Valves
" H.P. Piston Rings	" I.P. Piston Rings	" L.P. Piston Rings
" " Springs	" " Springs	" " Springs
" Safety Valve "	" Fire Bars	" Feed Check Valves
" Piston Rods	" Connecting Rods	" Valve Spindles
" Air Pump Rods	" Air Pump Buckets	" Air Pump Valves
" Cir. "	" Cir. "	" Cir. "
" Crank Shafts	" Crank Pin Bushes	" Crosshead Bushes
" Propeller Shafts	" Propellers	" Propeller Blades
" Boiler Tubes	" Condenser Tubes	" Condenser Ferrules

OTHER ARTICLES OF SPARE GEAR:— MAIN - MOTOR.

- 1 CYLINDER-COVER WITH STUDS & NUTS.
- 1 CYLINDER LINER.
- 1 SET OF CRANK-PIN BRASSES WITH BOLTS & NUTS.
- 1 - " GUDGEON PIN BUSHES
- 1 - " MAIN BEARING BRASSES
- 1 PISTON COMPLETE WITH RINGS.
- 2 SET OF PISTON RINGS.
- 1 INLET VALVE COMPLETE
- 6 EXHAUST — " —
- 3 — " — SEATS.
- 3 FUEL " — COMPLETE
- 2 SPINDLES FOR FUEL VALVES
- 3 LOOSE BOTTOMS FOR — " —
- 1 STARTING VALVE COMPLETE.
- 1 SET OF SPARE PARTS FOR FUEL PUMP.

1 SET OF PISTON RINGS FOR AIR COMPRESSOR.

7 VALVES COMPLETE

AUXILIARY-MOTOR.

1 SET OF CRANK-PIN BRASSES WITH BOLT & NUTS

1 - " - GUDGEON PIN BUSHES.

1 - " - MAIN BEARING BRASSES.

1 - " - PISTON RINGS FOR 1 PISTON

1 EXHAUST VALVE COMPLETE.

1 FUEL — " —

1 SET OF VALVES FOR AIR COMPRESSOR.

1 - " PISTON RINGS, EACH SIZE WITH INTERMEDIATE RINGS.

FOR AIR COMPRESSOR.

DYNAMO & ELECTRIC-MOTORS.

1 SPARE ARMATURE WITH SHAFT FOR 33 KW DYNAMO.

1 SET BRUSHES FOR SAME.

1 SPARE ARMATURE WITH SHAFT FOR ELECTRIC-MOTOR.

FOR COMBINED FUEL OIL & LUBRICATING OIL PUMPS.

1 SET OF BRUSHES FOR SAME.

SHAFTING.

1 SET OF COUPLING BOLTS FOR 1 FLANGE

1 PROPELLER. (CAST-IRON)

1 TEMPLATE FOR PROPELLER-SHAFT TAPER.

1 - " - SHAFT-COUPLINGS.

2 NH₃ PRESSURE GAUGES.
 1 ARMATURE FOR COMPRESSOR MOTOR
 1 SET OF MAIN BEARING BUSHES.
 1 " " CONNECTING ROD BUSHES.
 1 " " BRUSH HOLDER FOR COMPRESSOR MOTOR
 1 " " CARBON BRUSHES.
 1 " " CONTACT FINGERS SPRINGS, SCREWS E.T.C.
 FOR MOTOR STARTERS.

1 SET. $\frac{3}{8}$ " NH₃ REGULATING VALVE.
 1 " " " STOP " "

6 TUBES FOR CONDENSER.

24 RUBBER RINGS "

1 LENGTH $\frac{1}{4}$ " NH₃ PIPES.

2 " " " " "

2 " " $\frac{3}{8}$ " " "

1 " " $\frac{1}{4}$ " CHARGING " "

1 " " " VALVE.

2 SETS $\frac{1}{4}$ " FLANGES FOR NH₃.

2 " " " " " "

2 " " $\frac{3}{8}$ " " "

1 THERMOMETER +10° To +110° F.

1 " " " 0° To. +70° F.

A SUPPLY OF PACKINGS & JOINT RINGS

ELECTRIC LIGHTING.

Installation Fitted by *M/S. BURMEISTER & WAIN.*

No. and Description of Dynamos *2. COMPOUND WOUND DIRECT.*

Makers of Dynamos *M/S. TITAN COPENHAGEN*

Capacity " *33-5 kw.* Amperes, at *150-22.7* Volts, *220* Revols. per Min *500-1250.*

Current Alternating or Continuous *CONTINUOUS.*

Single or Double Wire System *DOUBLE*

Position of Dynamos *ENGINE ROOM.*

" Main Switch Board " - "

No. of Circuits to which Switches are provided on Main Switch Board *11.*

Particulars of these Circuits:—

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor. mm ²	Current Density. AMP.	Conductivity of Conductor.	Insulation Resistance per Mile. MEGOHM.
#1. 33 KW DYN			150.	95.		$\frac{1}{57}$	500
MO							
#2 WINDLASS.			46.	70			
& WINCH			114.				
3. CAPSTAN.			26.	6.	4.3		
4. BALLAST PUMP.			35.	10.	3.6		
5. OIL PUMPS.			35.	10	3.6		
6. STEERING GEAR.			10.	4.			
7. REFRIGERATOR.			35.	10.	3.5		
8. SHORE CONNECTION				35			
9. FRESH WATER PUMP.			25.	10.	2.5		
10. ELECTRIC LIGHT.			48	16.	3.0		
11. 5 KW DYNAMO.			22.7	6.	3.6		

Total No. of Lights *83.* No. of Motors *13.* No. of Heaters *0.*

Current required for Motors and Heaters *370 AMP. TOTAL.*

Positions of Auxiliary Switch Boards, with No. of Switches on each

Are Out-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits

YES.

On Aux. " " each Auxiliary Circuit

YES.

Wherever a Cable is reduced in size

YES.

To each Lamp Circuit

YES.

To both Flow and Return Wires of all Circuits when the Double-Wire System is adopted

YES.

Are the Fuses of Standard Sizes?

YES.

Are all Switches and Cut-outs constructed of Non-inflammable Material?

YES.

Are they placed so as to be always and easily accessible?

YES.

Smallest Single Wire used, No. 10.5 mm². Largest, No. 1.5 mm².

How are Conductors in Engine and Boiler Spaces protected?

LEAD COVERED & STEEL WIRE ARM.

" Saloons, State Rooms, &c., " LEAD COVERED

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp

(2) " " passing through Bulkheads or Cargo Spaces STEEL ARM CABLES USED.

(3) " " Deck Beams or Bulkheads WHERE NECESSARY

BUSHE WITH LEAD & WATER TIGHT GLANDS USED.

Are all Joints in Cables properly soldered and thoroughly insulated so that the efficiency of the Cables is unimpaired? YES.

Are all Joints in accessible positions, none being made in Bulkheads or Cargo Spaces? YES.

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface?

Are the Dynamos, Motors, Main and Branch Cables, so placed that the Compasses are not injuriously affected by them? YES.

Have Tests been made to prove that this condition has been satisfactorily fulfilled? YES.

Has the Insulation Resistance over the whole system been tested? YES.

What does the Resistance amount to? 500,000 Ohms.

Is the Installation supplied with a Voltmeter? YES.

" " " an Ampere Meter? YES.

Date of Trial of complete Installation 17/2 1928 Duration of Trial 6 Hours

Have all the requirements of Section 42 been satisfactorily carried out? YES.



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GENERAL CONSTRUCTION.

Have the Machinery and Boilers been constructed in accordance with the requirements of the Rules and the

Approved Plans? *YES*

If not, give details of the points of difference, and state when these were sanctioned by the Chief

Surveyor. *YES*

Are the Materials used in the Construction of Engines and Boilers, so far as could be seen, sound and trustworthy? *YES*

Is the Workmanship throughout thoroughly satisfactory? *YES*

The above correctly describes the Machinery of the M.S. *Helinga*

as ascertained by ^{us}me from personal examination

[Signature]
Engineer Surveyor to the British Corporation for the
Survey and Registry of Shipping.

Fees—

MAIN BOILERS.		£	s.	d.
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
DONKEY BOILERS.				
H.S.	Sq. ft.	:	:	
G.S.	"	:	:	
		£	:	:
ENGINES.				
L.P.O.	Cub. ft.	:	:	
		£	:	:
Testing, &c. ...		:	:	
		£	:	:
Expenses ...		:	:	
		£	:	:
Total ...		£	:	:

It is submitted that this Report be approved.

[Signature]
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *7TH MARCH 1928*

Fees advised

Fees paid



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*The British Corporation Register
of Shipping and Aircraft.
Glasgow.*

M/S. "MELINGA".

Hydraulic Test on Main Engine no.1397.

Article:	Date:	Pressure:
1 Oil cooler engine no.1397	12/9-27	10 atm.
H.P. Compressor cylinder	20/9 "	130 "
M.P. Air cooler in airspace	24/9 "	40 "
L.P. " " " "	24/9 "	100 lbs.
H.P. Air cooling coil	26/9 "	130 atm.
M.P. and L.P. Compressor cylinder on water side	26/9 "	100 lbs.
H.P. Compressor cooling jacket	3/10 "	50 "
1 Fuel oil pump on discharge side	8/10 "	150 atm.
1 do. " suction side	8/10 "	10 "
Starting air automatic valve chest	17/10 "	50 "
6 Cylinder covers and jackets	19/10 "	50 "
Starting air reservoir	22/11 "	40 "
1 Spare liner and cover	10/12 "	50 lbs.
1 Blast air bottle and head no.152443	10/12 "	2000 "
2 " " " " " no.152441 & 152442	10/12 "	2000 "
Starting air pipes	11/2-28	50 atm.
Blast air pipe	13/2 "	2000 lbs.
M.P. and L.P. air cooler on water side	28/9-27	100 "

Hydraulic Test on Auxil. Engine no. 1398 :

H.P. Compressor cylinder	12/9-27	130 atm.
H.P. Air cooling coil	16/9-	130 "



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T OTT COOJEL ENGTVE NO.1233

13/0-33 10 WCH

VLEJOTS:

2426: BLSOJLE:

13412310 1234 ON 12345 ENGTVE NO.1233

R, S " R E F I R E V "

M/S. "MEELINGA".

-2-

Article:	Date:	Pressure:
M.P. and L.P. Air cooler on water side	26/9-27	50 lbs.
2 Cylinder jackets	3/10 "	50 "
E.P. Air Cooler in airspace	18/10 "	100 "
L.P. Air cooler on water side	20/10 "	50 "
1 Blast air bottle and head no.152444	10/12 "	2000 "

All articles dated as above and stamped B.C.

The main engine was tested in workshop from the 25/11.27 - 3/12.27.

Revolutions per minute 185.

Pressure 7,5 kg. pr. sq.cm.

B.H.P. 361.

Copenhagen, the 21st February 1928.

Surveyor to

The British Corporation Register

[Handwritten Signature]



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