No. 2008

TRANSFERRED TO L. R. SYSTEM

THE BRITISH CORPORATION FOR THE SURVEY AND REGISTRY OF SHIPPING.

Report No. 1988 No. in Register Book 3320

X/N "ANJA"

S.S. Oil motor ship "YOMAH"

Makers of Engines Wm Denny & Bros Ltd

Works No. 920

Makers of Main Boilers None

Works No. —

Makers of Donkey Boiler Wm Denny & Bros Ltd

Works No. 920

MACHINERY.

No.

THE BRITISH CORPORATION FOR THE SURVEY AND REGISTRY OF SHIPPING.

Report No. 1988 No. in Register Book 3320

Received at Head Office 8th November 1926.

Surveyor's Report on the New Engines, Boilers, and Auxiliary Machinery of the ~~Single~~ ~~Triple~~ ~~Twin~~ ~~Quadruple~~ Screw Oil Motor Ship

"YOMAH"

Official No. Port of Registry Glasgow.

Registered Owners The M.V. Yomah Co Ltd

Engines Built by Wm Denny & Bros. Ltd

at Dumbarton

Main Boilers Built by ——

at ——

Donkey " " Wm Denny & Bros Ltd

at Dumbarton

Date of Completion 24/10/26

First Visit 7/10/24 Last Visit 24/10/26 Total Visits 68.

RECIPROCATING ENGINES.

Works No. 920 No. of Sets One Description Six-cylinder 2 stroke cycle single-acting direct reversing Sulzer type Diesel engine

No. of Cylinders each Engine 6 No. of Cranks 6

Diars. of Cylinders 600 m/m (23.62") Stroke 1060 m/m (41.7")

Cubic feet in each L.P. Cylinder

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 —

Aux " Condenser Surface Cooling Surface 613 sq. ft.

Diameter of Piston Rods (plain part) 5 15/16" Screwed part (bottom of thread) —

Material " M.S.

Diar. of Connecting Rods (smallest part) 165 m/m 6 5/8" Material M.S.

" Crosshead Gudgeons 11" Length of Bearing 2 @ 7 1/4" Material M.S.

No. of Crosshead Bolts (each) 4 Diar. over Thrd. 1 13/16" Thrds. per inch 6 Material M.S.

" Crank Pin " " 2 " 3" " 4 "

" Main Bearings 8 Lengths 410 m/m 16.14" (31-35 tons)

" Bolts in each 4 Diar. over Thread 2" Threads per inch 4 Material M.S.

" Holding Down Bolts, each Engine 122 Diar. 12 1 3/4" 110 1 5/8" No. of Metal Chocks 122.

Are the Engines bolted to the Tank Top or to a Built Seat? Built Seat

Are the Bolts tapped through the Tank Top and fitted with Nuts Inside? —

If not, how are they fitted? All fitted bolts, holes bored in position.

Connecting Rods, Forged by Henschel & Sohn Bochum.

Piston " " Wm Denny & Bros Ltd

Crossheads, " Henschel & Sohn Bochum.

Connecting Rods, Finished by William Denny & Bros. Ltd

Piston " " " " "

Crossheads, " " " " "

Date of Harbour Trial 20/10/26. (SHOP TRIAL 19/4/26)

" Trial Trip 24/10/26

Trials run at Skelmorlie

Were the Engines tested to full power under Sea-going conditions? Yes.

If so, what was the I.H.P.? 2313, S.H.P. 1735 Revols. per min. 100.25

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

Speed on Trial 11.722

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

Builders' estimated I.H.P. Revols. per min.

Estimated Speed

24/10/26. Engines tried with auxiliary compressor on blast air; injection pressure steady at 680 lbs/□" at 84 r.p.m.

Lubricating oil pressure 6 lbs/□"
do crosshead 265 "
jacket cooling water 10 lbs/□"
piston " " 24 "
Compressor, L.P. 20 lbs/□", H.P. 100 lbs/□" HP. 900 lbs/□"

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?

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

Revols. 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 Revols. per min. S.H.P.

Turbine Spindles forged by

" Wheels forged or cast by

Reduction Gear Shafts forged by

" Wheels forged or cast by

DESCRIPTION OF INSTALLATION.

The main propelling unit consists of one six-cylinder vertical, direct reversible, Denny Sulzer diesel engine developing 1875 B.H.P.

The main engine drives, through an extension of the main crank shaft, one 3 stage air compressor and one double-acting scavenge pump. Links attached to the scavenge-pump crosshead actuate the following pumps:-

One double-acting jacket cooling water pump
" " " piston " " "
" " " auxiliary condenser "
" Single " lubricating oil pump
" " " bilge pump
" " " crosshead lubrication pump.

Lubrication:- The cylinders are supplied with oil from four Bosch force pumps, each cylinder having six lubricating points. The scavenge pump and air compressor cylinders are similarly supplied. Bottom ends, main bearing and guide bars are supplied from an overhead gravity tank. The crank case oil drains to a double bottom tank from which it is drawn by the engine driven oil pump, and is passed thro' a filter & oil cooler on its return to the gravity tank. The top ends are supplied thro' telescopic pipes from a high pressure range (250 lbs/□") with air vessels for equalising the pressure, situated between each two rods. Cam shafts, links and levers on scavenge pump etc are syphon lubricated.

CONT^D PAGE 7.

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

Revols. 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 Revols. 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.

One Sharples oil purifier for lubricating oil and one for fuel oil are fitted with cross-connections.

Cooling water System: Sea water is used throughout for cooling pistons, jackets, covers, and fuel valves. The water passes thro' a Carruthers type filter, fitted in duplicate, and is pumped to jackets, covers, & thence to fuel valves where there is an open outlet.

Ahead and astern guides are oil-cooled.

Air system:- Injection air is supplied from engine-driven compressor to injection air bottle between No 3 & No 4 cylinders, and is distributed and controlled from this bottle. Pressure varies with load. Maximum inj. air pressure 1000 lbs/□". Engine driven compressor can supply all necessary injection air & simultaneously charge up starting air groups. A stand-by injection air bottle is provided. Starting air is stored in cyl. steel bottles @ 1000 lbs/□". They are arranged in two

CONT^D PAGE 13.

SHAFTING.

Are the Crank Shafts Built or Solid? Solid

No. of Lengths in each 2. Angle of Cranks 120°

Diar. by Rule 15·04" Actual 15·945" In Way of Webs —

" of Crank Pins 15·94" Length between Webs 13 3/8"

Greatest Width of Crank Webs 21·75" Thickness 8·875"

Least " " 21·75" " 8·875"

Diar. of Keys in Crank Webs — Length —

" Dowels in Crank Pins — Length — Screwed or Plain —

No. of Bolts each Coupling 12. Diar. at Mid Length 2 15/16" Diar. of Pitch Circle 1'-11 3/4"

Greatest Distance from Edge of Main Bearing to Crank Web 1/4"

Type of Thrust Blocks Michel

No. " Rings Two.

Diar. of Thrust Shafts at bottom of Collars 12·075" 15·354" No. of Collars One.

" " Forward Coupling 15·94" At Aft Coupling 15·35"

Diar. of Intermediate Shafting by Rule 11·5" Actual 13" No. of Lengths 6.

No. of Bolts, each Coupling 9 Diar. at Mid Length 2 15/16" Diar. of Pitch Circle 19 3/8"

Diar. of Propeller Shafts by Rule 12·75" Actual 14·25" At Couplings 13 3/4"

Are Propeller Shafts fitted with Continuous Brass Liners? Yes.

Diar. over Liners 15 3/4" Length of After Bearings 5'-0"; rule 54"

Of what Material are the After Bearings composed? Lignum Vitae

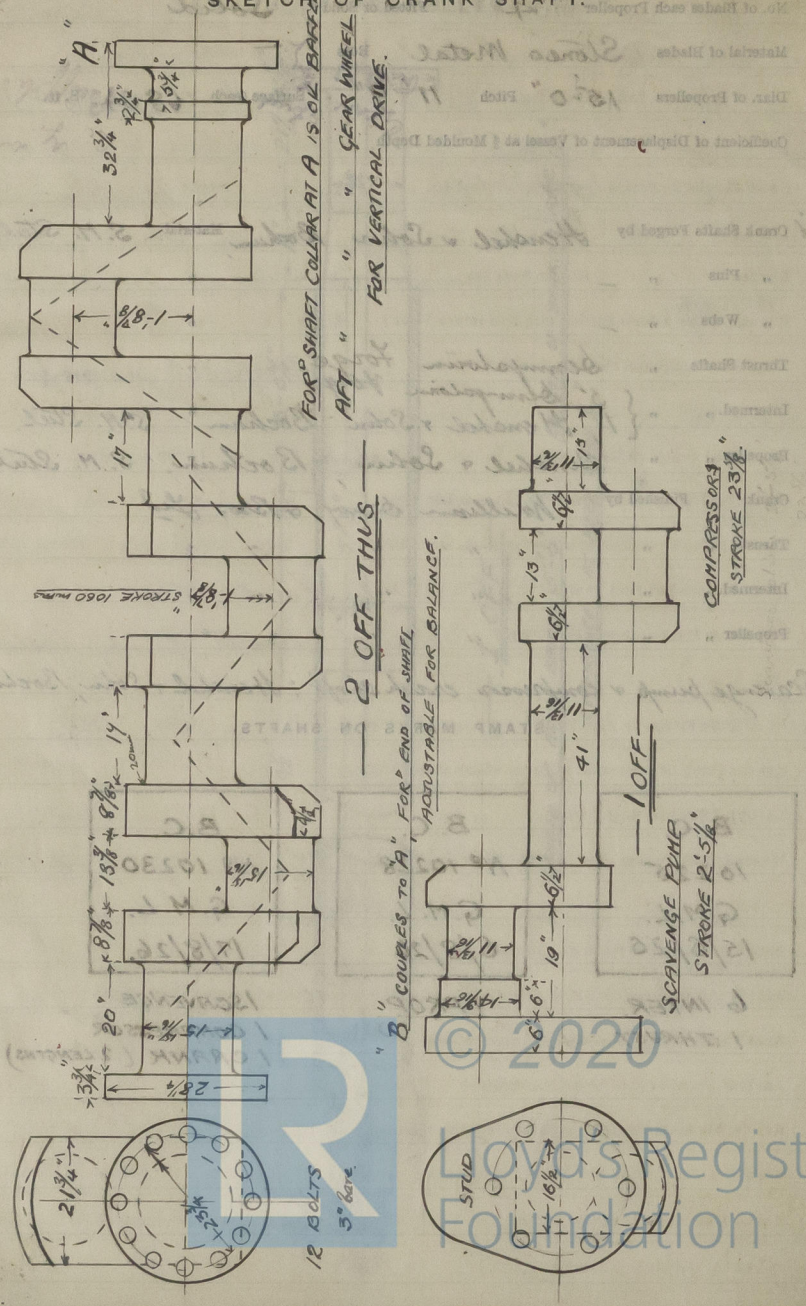
Are Means provided for lubricating the After Bearings with Oil? Grease pump only.

" " to prevent Sea Water entering the Stern Tubes? No

If so, what Type is adopted? Sea water lubrication

Thickness of liner; rule 23/32" made 24/32"

SKETCH OF CRANK SHAFT.



No. of Blades each Propeller 4 Fitted or Solid? Solid

Material of Blades Stones Metal Boss —

Diar. of Propellers 15'-0" Pitch 11'-9" Surface (each 68·34 S. ft.

Coefficient of Displacement of Vessel at ⅔ Moulded Depth

Solid Crank Shafts Forged by Henschel & Sohn, Bochum Material S.M. Steel.

" Pins " — "

" Webs " — "

Thrust Shafts " Dennystown Forge "

Intermed. " " { 5 Dennystown Forge
1, Henschel & Sohn Bochum " S.M. Steel

Propeller " " Henschel & Sohn, Bochum. S.M. Steel

Crank " Finished by William Denny & Bros Ltd

Thrust " " " " " "

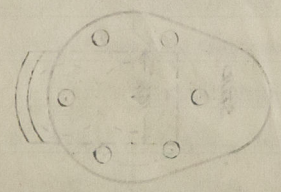
Intermed. " " " " " "

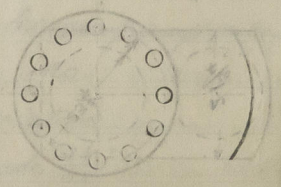
Propeller " " " " " "

Scavenge pump & compressor crank shaft; Henschel & Sohn, Bochum.

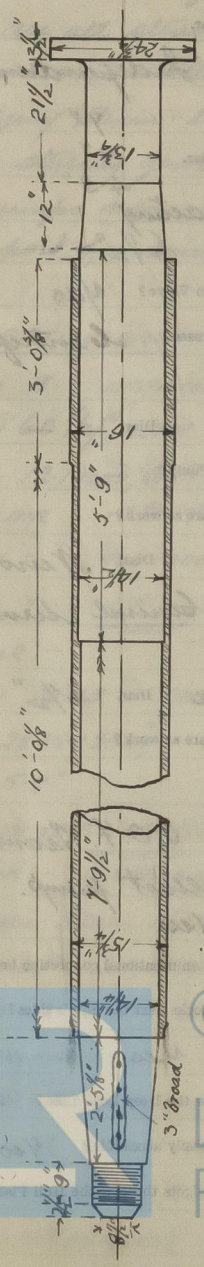
STAMP MARKS ON SHAFTS.

B.C. 10225 G.M.L. 15/6/26	B.C. Nº 10228 G.M.L. 6/8/26	B.C. Nº 10230 G.M.L. 17/8/26.
6 INTER. 1 THRUST	1 PROP.	1 SCAVENGE 1 COMPRESSOR 1 CRANK (2 LENGTHS)





SKETCH OF PROPELLER SHAFT.



PUMPS, ETC.

No. of Air Pumps One auxy Diar. Stroke

Worked by Main or Independent Engines? Independant (Mumford's)

No. of Circulating Pumps 1 condenser 1 jacket cooling 1 piston Diar. 4" 4" 4.5" Stroke 15 3/4"

Type of " Double-acting

Diar. of " Suction from Sea 6 1/2"

Has ~~each~~ Ballast Pump a Bilge Suction with Non-return Valve? Yes Diar. 4"

What other Pumps can circulate through Condenser? Centrifugal pump for harbour use,

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 2 Diar. Weir's Stroke

What other Pumps can feed the Boilers? General service pump, ballast pump.

No. of Bilge Pumps on Main Engine One Diar. 6 1/2" Stroke 15 3/4

Can one Pump be overhauled while the others are at work? —

No. of Independent Bilge Pumps —

What other Pumps can draw from the Bilges? E.O.T. Transfer pump, B.O.T. transfer pump, ballast pump.

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? Yes

Are they placed so as to be easily accessible? Yes.

Are the Discharge Chests placed above or below the Deep Load Line? below

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.

groups of five bottles each fitted with relief valve.

Auxiliaries are all steam driven. Two cylindrical oil-fired boilers are installed, each of which is capable of supplying steam to reversing & turning engines, aux compressor, steering gear, windlass, whistle, dynamo and all aux pumps required at sea. Both boilers are used in port for winches

— PARTICULARS —

No OF MAIN BEARINGS 8 DISTANCE BETWEEN EDGES 810 m/m.

MAX. INITIAL W.P. 560 lbs/□" MEAN 83.4 lbs/□"

WEIGHT OF FLYWHEEL 12.1 TONS, DIAM^R 6'-10 1/2" (2100 m/m)

PRESSURE SCAVENGE AIR .5 lbs/□"

" INJECTION " 900-1000 lbs/□"

" STARTING " " "

MAIN AIR COMPRESSOR:—

STAGE 1 :- DIAM 28.35" STROKE 23.62" PRESSURE 45 lbs/□"

STAGE 2 " 28.35"-25.59" " " " 280 lbs/□"

STAGE 3 " 5.9" " " " 1060 "

MAX. PRESSURE AT ACCUM. TEST (23/4/26) 1250 lbs/□", VALVE SET TO 1150 lbs.

AUX^Y AIR COMPRESSOR:- Brotherhoods vertical single crank 3 stage enclosed type steam driven. Capacity 180 cu. ft free air to 1000 lbs/□" when running at 350 r.p.m. steam pressure 110-125 lbs/□" exhausting to aux condenser at 20" vacuum.

STARTING AIR BOTTLES : 10 } 12'-5 1/2" × 1'-11 1/4" × 98.4"

RESERVE BLAST " 1 } cap. 36.5 cu ft (800 litres)

1 " " 4'-4 1/4" × 11 3/4" × 59" cap. 5.7 cu ft

Made by Pries & Walkwork Rochdale

DONKEY.

BOILERS.

Works No. 920

No. of Boilers 2 Type Cylindrical return tube

Single or Double-ended Single

No. of Furnaces in each 2.

Type of Furnaces Morison

Date when Plan approved 30/9/24.

Approved Working Pressure 125 lbs/□"

Hydraulic Test Pressure 238 lbs/□"

Date of Hydraulic Test 24/5/26.

" when Safety Valves set 25/10/26

Pressure at which Valves were set 124 lbs/□"

Date of Accumulation Test 25/10/26

Maximum Pressure under Accumulation Test 130 lbs/□"

System of Draught Whites Low pressure oil fuel system.

Can Boilers be worked separately? Yes.

Makers of Plates D. Colville & Sons Ltd

" Stay Bars " " " "

" Rivets Rivet bolt & nut Co Ltd

" Furnaces J. Marshall & Co

Greatest Internal Diar. of Boilers 10'-0"

" " Length " 9'-4 3/8"

Square Feet of Heating Surface each Boiler 860

" " Grate " " Oil fuel.

No. of Safety Valves each Boiler 2 Rule Diar. 1 15/16" F. H.L. Actual 2" H.L.

Are the Safety Valves fitted with Easing Gear? Yes.

No. of Pressure Gauges, each Boiler 1. No. of Water Gauges 1.

" Test Cocks " 3. " Salinometer Cocks 1.

— MARK ON BOILERS. —

B.C. TEST
No 4942.
TEST PRES. 238 lbs/□"
WORK. PRESS 125 lbs/□"
G.M.L.
24/5/26.

Waste steam branch 2 3/4" main 3 3/4"

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

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

Are these Pipes connected to Boilers by Cocks or Valves? Cocks

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

No. of Strakes of Shell Plating in each Boiler One

" Plates in each Strake Two

Thickness of Shell Plates Approved 5/8"

" " in Boilers 5/8"

Are the Rivets Iron or Steel? Steel

Are the Longitudinal Seams Butt or Lap Joints? Butt

Are the Butt Straps Single or Double? Double

Are the Double Butt Straps of equal width? Yes.

Thickness of outside Butt Straps 1/2"

" inside " 5/8"

Are Longitudinal Seams Hand or Machine Riveted? Machine

Are they Single, Double, or Treble Riveted? Treble

No. of Rivets in a Pitch 4

Diar. of Rivet Holes 3/4" Pitch 5

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 2

Are these Seams Hand or Machine riveted? ~~Machine~~ Hand.

Diar. of Rivet Holes 13/16" Pitch 2 7/8 B.

No. of Rows of Rivets in Back End Circumferential Seams 2

Are these Seams Hand or Machine Riveted? Machine

Diar. of Rivet Holes 13/16" Pitch 2 7/8 B.

Size of Manholes in Shell 16" × 12"

Dimensions of Compensating Rings 2'-4" × 2'-4"

Thickness of End Plates in Steam Space Approved 13/16"

" " " " " in Boilers 13/16"

Pitch of Steam Space Stays 14½" × 14" & 14" × 13"

Diar. " " " " Approved 1⅞ Body Threads per Inch Swelled to 2⅜ 9th/"

" " " " " in Boilers " " " 2⅛" at back

Material of " " " Steel

How are Stays Secured? Screwed thro' plate & nut on outside

Diar. and Thickness of Loose Washers on End Plates —

" " Riveted " " " —

Width " " Doubling Strips " —

Thickness of Middle Back End Plates Approved 21/32"

" " " " " in Boilers 21/32" B.

Thickness of Doublings in Wide Spaces between Fireboxes —

Pitch of Stays at " " " " 13¾" × 7¾"

Diar. of Stays Approved 1½" marg. Threads per Inch 9

" " in Boilers 1½" " " 9

Material " Steel

Are Stays fitted with Nuts outside? Yes.

Thickness of Back End Plates at Bottom Approved 21/32"

" " " " " in Boilers 21/32" B.

Pitch of Stays at Wide Spaces between Fireboxes — 13¾"

Thickness of Doublings in " " ½" round bot long. stay.

Thickness of Front End Plates at Bottom Approved 13/16"

" " " " " in Boilers 13/16"

No. of Longitudinal Stays in Spaces between Furnaces 1 over manhole door.

Diar. of Stays Approved 2" body Threads per Inch Swelled to 2¼ 9 th/"

" " in Boilers " " "

Material " Steel.

Thickness of Front Tube Plates Approved 13/16"

" " " " in Boilers 13/16"

Pitch of Stay Tubes at Spaces between Stacks of Tubes 13¾" × 7¾"

Thickness of Doublings in " " " —

" Stay Tubes at " " " 5/16"

Are Stay Tubes fitted with Nuts at Front End? No.

Thickness of Back Tube Plates Approved 11/16"

" " " in Boilers 11/16"

Pitch of Stay Tubes in Back Tube Plates 11⅝" × 7¾"

" Plain " 3⅞" × 3⅞"

Thickness of Stay Tubes 38 at 5/16", 4 at 3/8"

" Plain " 10 I.W.G.

External Diar. of Tubes 2¾"

Material " Lap-welded Iron.

Thickness of Furnace Plates Approved 7/16"

" " " in Boilers 7/16"

Smallest outside Diar. of Furnaces 2'-11⅞"

Length between Tube Plates 6'-4½"

Width of Combustion Chambers (Front to Back) 2'-1½"

Thickness of " " Tops Approved 17/32"

" " " in Boilers 17/32"

Pitch of Screwed Stays in C.C. Tops 9" × 7½"

Diar. of Screwed Stays Approved 1 3/8" Threads per Inch 9

" " " in Boilers 1 3/8" 9

Material " " Steel

Thickness of Combustion Chamber Sides Approved 17/32"

" " " " in Boilers 17/32"

Pitch of Screwed Stays in C.C. Sides 7 1/4 × 9" top × 9 1/2 bottom.

Diar. " " Approved 1 3/8" Threads per Inch 9

" " " in Boilers 1 3/8"

Material " " Steel

Thickness of Combustion Chamber Backs Approved 1/2"

" " " " in Boilers 1/2"

Pitch of Screwed Stays in C.C. Backs 8 3/8" × 7 3/4"

Diar. " " Approved 1 3/8 centre Threads per Inch 1 1/2 marg. 1 5/8 top corner, all 9th/."

" " " in Boilers 1 3/8" " " "

Material " " Steel.

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

Thickness of Combustion Chamber Bottoms 17/32"

No. of Girders over each Wing Chamber 5

" " " Centre " —

Depth and Thickness of Girders 6 1/2 × 2 @ 7/16"

Material of Girders Steel

No. of Stays in each 2

No. of Tubes, each Boiler 134

Size of Lower Manholes 16" × 12"

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.

No. of Lengths	
Material	All high pressure pipes on
Brazed, Welded or Seamless	engine tested to 2000 lbs/□"
Internal Diar.	26/3/26.
Thickness	26 solid-drawn steel tubes with
How are Flanges secured?	screwed on flanges, varying from 38 m/m
Date of Hydraulic Test	bore × 6 m/m thick to 95 m/m bore
Test Pressure	× 5 m/m thick

No. of Lengths	
Material	All high pressure air pipes from
Brazed, Welded or Seamless	bottles to engine tested to 2000 lbs/□"
Internal Diar.	19/10/26.
Thickness	28 solid-drawn steel tubes with
How are Flanges secured?	screwed on flanges, varying from
Date of Hydraulic Test	1" bore × ·2 thick to 3·74" × ·41" thick
Test Pressure	

	Aux steam		
No. of Lengths	1	4	3
Material	Steel	Steel	Steel
Brazed, Welded or Seamless	Seamless	Seamless	Seamless
Internal Diar.	4½	3½"	4½"
Thickness	·23"	·22"	·23
How are Flanges secured?	Screwed	Screwed	Screwed
Date of Hydraulic Test	17/9/26.	17/9/26	29/9/26
Test Pressure	450 lbs/□"	450 lbs/□"	450 lbs/□"

EVAPORATORS.

B.C. No. 2 35-7 Type C. I with copper heating tubes Tons per Day 15

Makers Messrs Card & Rayner

Working Pressure 20 lbs Test Pressure 40 shell 250 coils Date of Test 23/6/25.

Date of Test of Safety Valves under Steam 24/10/26.

FEED WATER HEATERS.

No. Type None fitted.

Makers

Working Pressure Test Pressure Date of Test

FEED WATER FILTERS.

No. Type Low pressure (fibre) Size

Makers Wm Denny Bros. Ld.

Working Pressure — Test Pressure — Date of Test —

— TANKS —

Nos 4 port & stard and No 5 exd 8/10/26.

" 1, 2, & 3, " " " 11/10/26.

Ballast pipes made of C.I. straight lengths, & lap welded W.I. on bends, well clipped and good expansion bends fitted. No lead pipes in any tank.

— BILGES —

Exd 6/6/26 & exp. bends in all holds and well clipped

Pumping arrangements tested under steam 21/10/26.

LIST OF DONKEY PUMPS.

1. Ballast Pump: Mumford's "Iceberg".

Suctions:- Ballast tank, bilge direct, bilge range, [sea

Discharges:- Ballast Range, deck, condenser, overboard.

1 Engine Oil Fuel Pump
1 Boiler Oil Fuel Pump } Mumford's

Suctions:- Engine oil fuel, boiler oil fuel, filling pipes, bilge.

Discharges:- Eng service tanks, boiler service tanks, overboard, deck.

1 General Service: Mumford's duplex.

Suctions: Reserve feed tanks float tank, sea

Discharges: Wash deck, sanitary, hose conn.ns engine circulating, aux compr circulating, overboard boilers.

2 Feed Pumps: G. & J. Weir

Suctions:- Reserve feed, float tank, filter tanks boilers.

Discharges:- main & aux feed.

Oil Circulating Pump:- G. & J. Weir.

Suction from oil tank, deliv to oil cooler or by-pass.

1 Air-pump for aux condr G. & J. Weir.

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:—

69. SPARE GEAR.

FOR WORKING CYLINDER.

1 cylinder liner.
1 piston complete for main cylinder (with rings).
24 piston rings in all for main cylinder (rings in piston included). + 3 Scraper rings
2 fuel valve cams.
1 roller container complete for starting valve.
1 roller container complete for fuel valve.
1 set of main skew wheels, top and bottom.
2 main bearing bushes, one of each size, with two bolts and nuts of each size.
1 set of bushes with bolts and nuts for one main connecting rod.
~~6 glasses for cylinder lubrication sight feed.~~
2 lubricator distances pieces for cylinder liner lubrication.
2 moving and 2 stationary pipes for crosshead lubrication.
2 centre and 2 jet pipes for piston cooling.
18 Studs and nuts for main cylinder cover.

FOR CYLINDER COVER AND MOUNTINGS.

1 cylinder cover complete with starting and running valves, but not including cooling water mountings.
1 fuel non-return and overflow valve chest.
6 valves for ditto.
1 pre-starting valve with springs and rings complete.

3 fuel needle valves.
1 spring of each size for fuel needle valve.
1 starting valve, with springs and piston rings and distance pieces.
1 main starting air lever.
1 starting valve lever.
1 fuel valve lever.
6 seats for cylinder safety valves.
60% copper joints.

For Air Compressor (Engine).

1 set of bushes with bolts and nuts for one connecting rod for air pump (top and bottom).
1 set of piston rings for each stage.
1 scraper ring.
12 spare tubes of each size for coolers.
1 cylinder liner for H.P. stage.
4 valve seats (1 off H.P. suction, 1 off H.P. discharge, 1 right and 1 left for M.P. or L.P.).
1 suction and 1 discharge valve for H.P. stage.
1 set of suction and discharge valves for M.P. stage.
½ set of suction and discharge valves for L.P. stage.

For Scavenge Pump.

1 piston ring.
1 complete nest of each of suction and discharge valves for scavenge receiver.
1 nest of each air inlet and discharge valves with necessary covers, top or bottom.
20 additional scavenge pump valves.

For Fuel Pump.

6 suction valves and springs.
6 discharge valves and springs.
6 valve seats.
6 plungers with glands.

For Oil and Water Pumps driven by Main Engine.

1 set of suction and discharge valves for each pump driven off the engine.

For Turning and Starting Engine.

4 piston rings.
1 top end bush.
1 pair of bottom end bushes.
Bolts and nuts for bushes.
Above spare gear for turning engine to be repeated for starting engine.
1 thrust ball bearing for turning or starting gear shaft.

For Vertical Shaft.

3 half rings for vertical shaft thrust.
~~4 half adjusting liners for vertical shaft thrust.~~

For Thrust Block.

8 spring discs.
8 kidney pads.
Adjusting liners.

Miscellaneous. (For Main Machinery).

1 set of coupling bolts and nuts.
1 thrust ball bearing for cam shaft.
1 ball bearing for tachometer.

70. OUTFIT.

Each Department to deal with their items as listed.

Drawing Office—

1 Leather hose and connections.
1 emery wheel and small grindstone fitted in workshop and connected to motor.

General Store—

1 portable forge, 20-ins. diameter. Fan blower.
1 anvil (cwt.), fitted with hardy.
1 grindstone and trough.
1 ratchet brace.
1 drilling stand.
12 files, assorted.
1 vice, about 75-lbs.
1 vice bench for deck work.
1 hand vice.
1 pair copper vice grips.
2 pair lead vice grips.
3 hand chipping hammers.
1 sledge hammer.
1 heavy flogging hammer.
2 smith's hand hammers.
1 copper hammer.
1 lead hammer.
6 tube brushes of brass wire. (Handles from Shop Depts.).
6 oil cans, assorted.

REFRIGERATORS.

No. of Machines Capacity of each

Makers

Description

No. of Steam Cylinders, each Machine No. of Compressors No. of Cranks

Particulars of Pumps in connection with Refrigerating Plant and whether worked by Refrigerating Machines or Independently

None fitted

System of Refrigeration

„ Insulation

Are Brine and other Regulating Valves placed so as to be accessible without entering the Insulated Spaces?

Are all Pipes, Air Trunks, &c., well secured and protected from risk of damage?

Are all Bilge, Sounding, and Air Pipes in Insulated Spaces properly insulated?

Are Thermometer Tubes so arranged that Water cannot enter and freeze in them?

Date of Test under Working Conditions

RESULTS OF TRIALS.

COMPARTMENT.	Temp. at beginning of Trial.	Temp. at end of Trial.	Time required to obtain this Result.	Rise of Temp. after hours.

Articles of Spare Gear for Refrigerating Plant carried on board:—

A
B
C
D
E
F
G

ELECTRIC LIGHTING.

Installation Fitted by Wm Denny & Bros. Ltd

No. and Description of Dynamos One 4 pole compound wound.

Makers of Dynamos Verity's Aston; engine by M. Paul & Co

Capacity " 136 Amperes, at 110 Volts. 600 Revols. per Min.

Current Alternating or Continuous Continuous

Single or Double Wire System Double-wire

Position of Dynamos Engine room aft port side

" Main Switch Board " " " " bulkhead.

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

Particulars of these Circuits:—

Circuit.	Number of Lights.	Candle Power.	Current Required. Amps.	Size of Conductor.	Current Density.	Conductivity of Conductor.	Insulation Resistance per Mile.
Navigation bridge	35	280	13·0	7/·044	I.E.E. standard	99%	600 Meg.
Bridge Deck	65	520	17·7	7/·044	"	"	"
Crews quarter forward	56	448	15·2	7/·044	"	"	"
Machinery	57	456	15·5	7/·044	"	"	"
Wireless			4·5	7/·036	"	"	"
Cargo.	96	768	52·3	19/·064	"	"	"
Motors			57·6	19/·064	"	"	"
Projector				19/·064	"	"	"

Total No. of Lights 309 No. of Motors driving ~~Fans, &c.~~ 6 No. of Heaters —

Current required for Motors and Heaters 57·6 amps.

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

A on forward boat deck
B, C, & F on main deck
D & G in engine room.

Are Cut-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. 3/.029 S.W.G., Largest, No. 37/.064 S.W.G.

How are Conductors in Engine and Boiler Spaces protected? Lead-covered, armoured & braided

,, Saloons, State Rooms, &c., ,, ? Surface protected by brass saddles lead covered.

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp Lead covered, armoured & braided

(2) ,, passing through ~~Bunkers or~~ Cargo Spaces " " "

(3) ,, ,, Deck Beams or Bulkheads Lead ferrules & W.T. glands.

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables is unimpaired? No joints

Are all Joints in accessible positions, none being made in Bunkers or Cargo Spaces? —

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? .5 meg. Ohms.

Is the Installation supplied with a Voltmeter? Yes.

,, ,, ,, an Ampere Meter? Yes.

Date of Trial of complete Installation 26/10/26 Duration of Trial 6 hours.

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

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. —

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 S.M.S. "YOMAH"

as ascertained by ~~us~~ me from personal examination

Geo. M. Luke.

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

Fees—

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

It is submitted that this Report be approved,

J. Foster King

Chief Surveyor.

Approved by the Committee for the Class of **M.B.S.*** on the 17th November 1926

Fees advised

Fees paid

Secretary.