

No. 2281



THE BRITISH CORPORATION FOR THE SURVEY
AND

REGISTRY OF SHIPPING.

H. L. WYATT.

Report No. 2258 No. in Register Book 3642

Lt. John Milner

S.S. "Portwell"

Makers of Engines Swan Hunter & W.R. Ltd.

Works No. 1352.

Makers of Main Boilers Swan Hunter & W.R. Ltd.

Works No. 1350

Makers of Donkey Boiler None -

Works No. ✓

MACHINERY.



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No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office *24th February 1930*

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ^{Single Screw} ~~Steam~~ ^{Triple} ~~Quadruple~~ Screw Steamer "Portwell".

Official No. *161514* Port of Registry *Newcastle-on-Tyne*.

Registered Owners *Welland Steamship Co. Ltd.*
Welland, Ontario, Canada.

Engines Built by *Swan Hunter & W.R. D.*

at *Walker. R. Tyne.*

Main Boilers Built by *Swan Hunter & W.R. D.*

at *Walker.*

Donkey " " *None.*

at *✓*

Date of Completion *75.4.79.*

First Visit *26.11.78.* Last Visit *25.4.79.* Total Visits



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RECIPROCATING ENGINES.

Works No. **1352**. No. of Sets **One** Description **Triple expansion**
Surface condensing.

No. of Cylinders each Engine **Three.** No. of Cranks **Three**
 Diars. of Cylinders **15", 25" and 40"** Stroke **33"**
 Cubic feet in each L.P. Cylinder **24"**
 Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr.? **Yes**

" " each Receiver? **Yes.**

Type of H.P. Valves, **Piston valve.**

1st I.P. " **Tric valve.**

2nd I.P.,

L.P. " **Double ported.**

" Valve Gear **Stephenson Link.**

" Condenser **Circular Two flow.** Cooling Surface **700** sq. ft.

Diameter of Piston Rods (plain part) Screwed part (bottom of thread)

Material "

Diar. of Connecting Rods (smallest part) Material

" Crosshead Gudgeons Length of Bearing Material

No. of Crosshead Bolts (each) Diar. over Thrd. Thrds. per inch Material

" Crank Pin " " " "

" Main Bearings Lengths

" Bolts in each Diar. over Thread Threads per inch Material

" Holding Down Bolts, each Engine **61** Diar. **1 1/4"** No. of Metal Checks **61.**

Are the Engines bolted to the Tank Top or to a 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

Piston " "

Crossheads,

Connecting Rods, Finished by

Piston " "

Crossheads,

Date of Harbour Trial **22.4.79.**

" Trial Trip **25.4.79.**

Trials run at **Off River type.**

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

If so, what was the I.H.P.? **935**

Revs. per min. **99.75**

Pressure in 1st I.P. Receiver, **41.0** lbs., 2nd I.P., lbs., L.P., **11.5** lbs., Vacuum, **24.75** ins.

Speed on Trial **8.84**

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

data:—

Builders' estimated I.H.P.

Revs per min.

Estimated Speed

The machinery of this vessel is a duplicate of that numbered 1374 and fitted in no 1369 5/8 "John O. McKellar" building at the same time and the details of which are similar unless otherwise stated.



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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

Diam. of 1st Reduction Pinion

" 1st " Wheel

} Width

Pitch of Teeth

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion

" 2nd " Wheel

} Width

Pitch of Teeth

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

Angle of Cranks

Diar. by Rule

Actual

In Way of Webs

" of Crank Pins

Length between Webs

Greatest Width of Crank Webs

Thickness

Least

Diar. of Keys in Crank Webs

Length

" Dowels in Crank Pins

Length

Screwed or Plain

No. of Bolts each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Greatest Distance from Edge of Main Bearing to Crank Web

Type of Thrust Blocks

Multi-collar horse shoe.

No. " Rings

Diar. of Thrust Shafts at bottom of Collars

No. of Collars

" " Forward Coupling

At Aft Coupling

Diar. of Intermediate Shafting by Rule

Actual

No. of Lengths

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

No intermediate shafting.

Diar. of Propeller Shafts by Rule

Actual

At Couplings

Are Propeller Shafts fitted with Continuous Brass Liners?

Diar. over Liners

Length of After Bearings

Of what Material are the After Bearings composed?

Are Means provided for lubricating the After Bearings with Oil?

" " to prevent Sea Water entering the Stern Tubes?

If so, what Type is adopted?

SKETCH OF CRANK SHAFT.

See 3/4 King doc
 Engine 1236
 Built in 1927

Same as 3/4 King doc
 Engine 1236. built 1927.

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PUMPS, ETC.

No. of Air Pumps *One* Diar. *See page 10* Stroke *See page 10*
 Worked by Main or Independent Engines?
 No. of Circulating Pumps *One* Diar. Stroke
 Type of *" Dawson & Downie Simplex.*
 Diar. of *" Suction from Sea*
 Has each Pump a Bilge Suction with Non-return Valve? Diar.
 What other Pumps can circulate through Condenser? *Ballast pump.*
 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? *General Service pump,
 and injector.*
 No. of Bilge Pumps on Main Engine Diar. Stroke
 Can one Pump be overhauled while the others are at work?
 No. of Independent Bilge Pumps
 What other Pumps can draw from the Bilges? *Circulating pump and
 ballast pump.*
 Are all Bilge Suctions fitted with Roses? *Yes or mudboxes.*
 Are the Valves, etc., so arranged as to prevent unintentional connection between Sea and Bilges?
 Are all Sea Connections made with Valves or Cocks next the Ship's sides?
 Are they placed so as to be easily accessible?
 Are the Discharge Chests placed above or below the Deep Load Line?
 Are they fitted direct to the Hull Plating and easily accessible?
 Are all Blow-off Cocks or Valves fitted with Spigots through the Hull Plating and Covering Plates or Flanges
 on the Outside?

BOILERS

No. of Boilers *Two*
 Type of Boilers *Water-tube*
 Date when first approved *1880*
 Date of Hydrostatic Test *1880*
 Date when Safety Valves set *1880*
 Date of Accumulation Test *1880*
 Date when first approved *1880*
 Date of Hydrostatic Test *1880*
 Date when Safety Valves set *1880*
 Date of Accumulation Test *1880*
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 Date when Safety Valves set *1880*
 Date of Accumulation Test *1880*
 Date when first approved *1880*
 Date of Hydrostatic Test *1880*
 Date when Safety Valves set *1880*
 Date of Accumulation Test *1880*



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BOILERS

Works No. 1350.

No. of Boilers Two Type Cylindrical Multitubular

Single or Double-ended Single-ended

No. of Furnaces in each two.

Type of Furnaces Deighton. *Boilers Simplex.*

Date when Plan approved 3.1.29.

Approved Working Pressure 180 lbs. *Ballast Pump.*

Hydraulic Test Pressure 320 ..

Date of Hydraulic Test 4.4.29.

„ when Safety Valves set 22.4.29.

Pressure at which Valves were set 185 lbs.

Date of Accumulation Test none taken.

Maximum Pressure under Accumulation Test

System of Draught Howdens system forced C.A.

Can Boilers be worked separately? Yes.

Makers of Plates Steel Coy of Scotland. *J. J.*

„ Stay Bars

„ Rivets Rivet Bolt nut *and*

„ Furnaces Deighton, Patent Flue & tube Coy. *@*

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



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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



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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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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 Boilers
				Material
				Pressure, Weight or Diameter
				Internal Diar.
				Thickness
				How are Seams connected?
				Date of Hydraulic Test
				Test Pressure
				No. of Boilers
				Material
				Pressure, Weight or Diameter
				Internal Diar.
				Thickness
				How are Seams connected?
				Date of Hydraulic Test
				Test Pressure

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MAIN STEAM PIPES.

No. of Lengths	3.		
Material	Steel.		
Brazed, Welded or Seamless	Seamless		
Internal Diam.	3½"		
Thickness	¼"		
How are Flanges secured?	Screwed		
Date of Hydraulic Test	17. 4. 29.		
Test Pressure	540 lbs.		
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diam.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			
No. of Lengths			
Material			
Brazed, Welded or Seamless			
Internal Diam.			
Thickness			
How are Flanges secured?			
Date of Hydraulic Test			
Test Pressure			

LIST OF EVAPORATORS

No.	Type	Location	Working Pressure	Date of Test	Test Pressure	Date of Test
		Same as John O'Connell				
	FEED WATER HEATER					
		working pressure 180 lbs.				
		180 lbs.				
		180 lbs.				
	FEED WATER FILTERS					
		working pressure 180 lbs.				
		180 lbs.				
		180 lbs.				



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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 S.S. "Portwell".

as ascertained by *me* from personal examination

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

Fees—

MAIN BOILERS.

		£	s.	d.
H.S.	Sq. ft.	:	:	

G.S.	"	:	:	
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DONKEY BOILERS.

H.S.	Sq. ft.	:	:	
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G.S.	"	:	:	
------	---	---	---	--

	£	:	:	
--	---	---	---	--

ENGINES.

L.P.C.	Cub. ft.	:	:	
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	£	:	:	
--	---	---	---	--

Testing, &c. ...	:	:		
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	£	:	:	
--	---	---	---	--

Expenses ...	:	:		
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Total ...	£	:	:	
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It is submitted that this Report be approved,

John Barr for Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *23rd December 1929*



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 Foundation
 Secretary.

Fees advised

Fees paid



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