

No. 1859

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

PH

Report No. *1650* No. in Register Book

2909

S.S. "*Glenaldie*"

Makers of Engines *Swan Hunter Co. (Napton works)*

Works No. *1144*

Makers of Main Boilers *Swan Hunter Co. (Napton works)*

Works No. *1144*

Makers of Donkey Boiler *None fitted.*

Works No. _____

RETAIN

MACHINERY.



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004591-004595-0002

No.

THE BRITISH CORPORATION FOR THE SURVEY

AND

REGISTRY OF SHIPPING.

Report No. 1650 No. in Register Book 2909

Received at Head Office 15th August 1923

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

Official No. 145518 Port of Registry Newcastle

Registered Owners

Glen Line Ltd of Midland Ontario

Engines Built by

Swinfontenburgham Richardson & Co

at

Newton Works Walker Me.

Main Boilers Built by

do. do. do.

at

Newton Works Walker Me.

Donkey

None fitted

at

Date of Completion

26-4-23

First Visit

20/12/22

Last Visit

26/4/23

Total Visits

30



REPEAT FOR Nos 1148-50 RECIPROCATING ENGINES.

Works No. **1144** No. of Sets **one** Description **Triple expansion**

No. of Cylinders each Engine **3** No. of Cranks **3**
 Diars of Cylinders **16"-26½"-44"** Stroke **33"**
 Cubic feet in each L.P. Cylinder **29**
 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. "
 " 2nd I.P. "**Jack slide valve**
 " L.P. "**D.P. slide valve**
 " Valve Gear **Stephenson link**
 " Condenser **Surface (stl)** Cooling Surface **908** sq. ft.
 Diameter of Piston Rods (plain part) **4½"** Screwed part (bottom of thread) **2.91"**
 Material "**Roller steel bar**
 Diar. of Connecting Rods (smallest part) **4½"** Material **forged steel**
 " Crosshead Gudgeons **20 4½"** Length of Bearing **5"** Material **Forged stl.**
 No. of Crosshead Bolts (each) **4** Diar. over Thrd. **2"** Thrds. per inch **6** Material **stl.**
 " Crank Pin " " **2** " **2.8"** " **6** " **do.**
 " Main Bearings **6** Lengths **9¼**
 " Bolts in each **2** Diar. over Thread **2"** Threads per inch **6** Material **stl.**
 " Holding Down Bolts, each Engine **68** Diar. **1½"** No. of Metal Chocks **68**

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

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

If not, how are they fitted? **—**

Connecting Rods, Forged by **Messrs. Hingley Tom Doodley**
 Piston " " **do.**
 Crossheads, **do.**
 Connecting Rods, Finished by **Swan Hunter & Co.**
 Piston " " **do.**
 Crossheads, " " **do.**
 Date of Harbour Trial **20-4-23**
 " Trial Trip **26-4-23**
 Trials run at **Halfway mile**
 Were the Engines tested to full power under Sea-going conditions? **Yes**
 If so, what was the I.H.P.? **1025** Revols. per min. **195.7**
 Pressure in 1st I.P. Receiver, **71** lbs., 2nd I.P., — lbs., L.P., **16½** lbs., Vacuum, **22** ins.
 Speed on Trial **10.96** knots.
 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 _____



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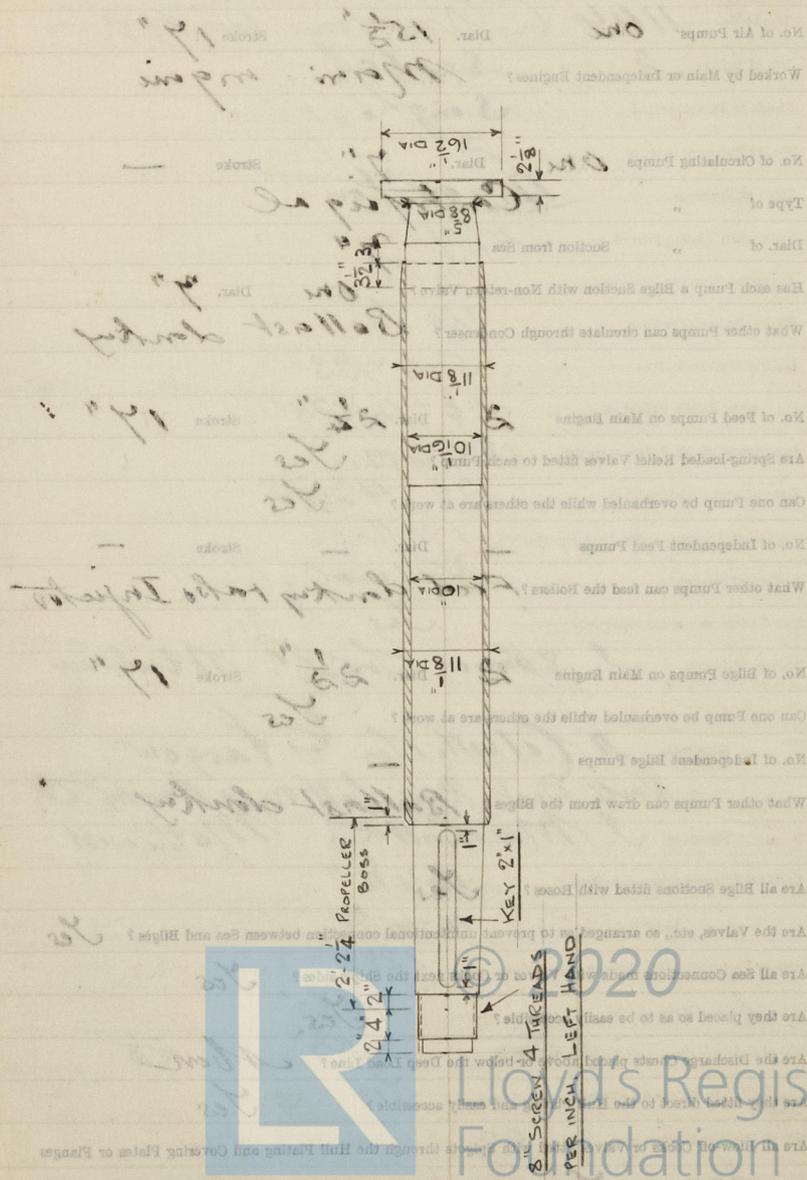
No. of Blades each Propeller *fitted* Fitted or Solid?
 Material of Blades *Cast iron* Boss *Cast iron*
 Diar. of Propellers *11-10"* Pitch *10-9"* Surface (each *44* S. ft.
 Coefficient of Displacement of Vessel at $\frac{1}{2}$ Moulded Depth *.832*

Crank Shafts Forged by *Hingley Son Dudley* Material *steel*
 " Pins " *do.* " *do.*
 " Webs " *Spencer Mankin* *do.*
 Thrust Shafts " *Hingley Son* " *do.*
 Intermed. " " *None* " *—*
 Propeller " " *Hingley Son* " *steel*
 Crank " Finished by *Son of Hingley & Co.*
 Thrust " " *do.*
 Intermed. " " *—*
 Propeller " " *do.*

STAMP MARKS ON SHAFTS.

<i>B.C. —</i>	} 1 Crank shaft.
<i>No. 5754</i>	
<i>N. 8-3-23</i>	
	} 1 Thrust do.
	} 1 Tail do.

SKETCH OF PROPELLER SHAFT.



Thickness of End Plates in Steam Space Approved

$1\frac{1}{16}$ " On pillars
 $1\frac{1}{16}$ " By pipes

" " " " " in Boilers

Pitch of Steam Space Stays

16×17 "

Diar. " " " " Approved $2\frac{3}{4}$ " Threads per Inch

6
6

" " " " " in Boilers

$2\frac{3}{4}$ "

Material of " " "

Steel

How are Stays Secured?

Double nuts & washers

Diar. and Thickness of Loose Washers on End Plates

$5 \times \frac{1}{4}$ "

" " 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 " " "

$14\frac{1}{4} \times 8\frac{3}{4}$ "

Diar. of Stays Approved $1\frac{3}{4}$ " Threads per Inch

9

" " " " " in Boilers

$1\frac{3}{4}$ "

9

Material "

Steel

Are Stays fitted with Nuts outside?

Yes

Thickness of Back End Plates at Bottom Approved

$2\frac{1}{32}$ "

" " " " " in Boilers

"

Pitch of Stays at Wide Spaces between Fireboxes

$14\frac{1}{4} \times 8\frac{3}{4}$ "

Thickness of Doublings in " "

Thickness of Front End Plates at Bottom Approved

$1\frac{1}{32}$ "

" " " " " in Boilers

$3\frac{1}{4}$ "

No. of Longitudinal Stays in Spaces between Furnaces

One

Threads per Inch

$2\frac{1}{2}$ "
 $2\frac{1}{2}$ "
 $2\frac{1}{2}$ "

Dist. of Stays Approved

" " " " " in Boilers

Material

Thickness of Front Top 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 Top Plates Approved

" " " " " in Boilers

Pitch of Stay Tubes in Back Top Plates

Plain

Thickness of Stay Tubes

Plain

External Diam. of Tubes

Material

Thickness of Furnace Plates Approved

" " " " " in Boilers

Smallest outside Diam. of Furnaces

Length between Top of Furnaces

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Diam. of Stays Approved

2 5/8"

Threads per Inch

6

" " in Boilers

2 5/8"

6

Material

Steel

Thickness of Front Tube Plates Approved

1 1/2"

" " " in Boilers

"

Pitch of Stay Tubes at Spaces between Stacks of Tubes

14 1/2" x 8 3/4"

Thickness of Doublings in

" " "

5 7/16"

" Stay Tubes at

" " "

Are Stay Tubes fitted with Nuts at Front End?

4 Corners tubes only

Thickness of Back Tube Plates Approved

1 3/16"

" " " in Boilers

"

Pitch of Stay Tubes in Back Tube Plates

13 5/8" x 9"

" Plain

4 1/2" x 4 3/8"

Thickness of Stay Tubes

9/16"

" Plain

9. W. G.

External Diam. of Tubes

3 1/4"

Material

Lap welded steel

Thickness of Furnace Plates Approved

9/16"

" " " in Boilers

9/16"

Smallest outside Diam. of Furnaces

11 4 1/2"

Length between Tube Plates

7-0 3/8"

Width of Combustion Chambers (Front to Back)

2' 6" - all plates at top

Thickness of " " Tops Approved

1/2"

" " " in Boilers

" " "

Pitch of Screwed Stays in C.C. Tops

9 1/2" x 8"

Threads per Inch

1 1/2"
1 1/8"
2 1/4"

Diam. of Screwed Stays Approved

" " " in Boilers

Material

Thickness of Combustion Chamber Plates Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Stays

Threads per Inch

1 1/2"
1 1/8"
2 1/4"

Diam. " " " in Boilers

Material

Thickness of Combustion Chamber Backs Approved

" " " in Boilers

Pitch of Screwed Stays in C.C. Backs

Threads per Inch

1 1/2"
1 1/8"
2 1/4"

Diam. " " " in Boilers

Material

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

Thickness of Combustion Chamber Bottoms

No. of Girders over each Wire Chamber

Centre

Depth and Thickness of Girders

Material of Girders

No. of Stays in each

No. of Tubes each Boiler

Size of Lower Chamber



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No VERTICAL DONKEY BOILERS.

No. of Boilers *1* Type *Vertical*

Greatest Int. Diar. *36"* Height *12'*

Height of Boiler Crown above Fire Grate *12'*

Are Boiler Crowns Flat or Dished? *Flat*

Internal Radius of Dished Ends *18"* Thickness of Plates *1/2"*

Description of Seams in Boiler Crowns *Double Riveted*

Diar. of Rivet Holes *1/2"* Pitch *1 1/2"* Width of Overlap *1/2"*

Height of Firebox Crowns above Fire Grate *12'*

Are Firebox Crowns Flat or Dished? *Flat*

External Radius of Dished Crowns *18"* Thickness of Plates *1/2"*

No. of Crown Stays *12* Diar. *1/2"* Material *Steel*

External Diar. of Firebox at Top *36"* Bottom *36"* Thickness of Plates *1/2"*

No. of Water Tubes *12* Ext. Diar. *1 1/2"* Thickness *1/8"*

Material of Water Tubes *Steel*

Size of Manhole in Shell *18"*

Dimensions of Compensating Ring *18" x 1 1/2"*

Heating Surface, each Boiler *100 sq ft* Grate Surface *100 sq ft*

No SUPERHEATERS.

Description of Superheaters *Vertical*

Where situated? *Center*

Which Boilers are connected to Superheaters? *1*

Can Superheaters be shut off while Boilers are working? *Yes*

No. of Safety Valves on each Superheater *1* Diar. *1/2"*

Are " " fitted with Lasing Gear? *Yes*

Date of Hydraulic Test *5/11/10* Test Pressure *150 lbs*

Date when Safety Valves set *5/11/10* Pressure on Valves *150 lbs*

MAIN STEAM PIPES

<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						
<i>1</i>	<i>12'</i>	<i>12"</i>	<i>1/2"</i>						



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No. MAIN STEAM PIPES.

No. of Lengths	One	Two
Material	W. Iron	W. iron
Brazed, Welded or Seamless	L. W.	L. W.
Internal Diam.	4 3/8"	3 1/2"
Thickness	5/8"	1/4"
How are Flanges secured?	Screwed	Screwed
Date of Hydraulic Test	17-4-29	17-4-29
Test Pressure	540 lb	540 lb

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	

No. EVAPORATORS.

No.	6
Type	Feed chimney
Material	W. Water
Working Pressure	
Date of Test	4-22-29
Date of Test	4-22-29
No.	9
Type	Ballast chimney
Material	W. Water
Working Pressure	
Date of Test	17-4-29
Date of Test	17-4-29

FEED WATER FILTERS

No.	1
Type	Henry
Material	
Working Pressure	180 lb
Date of Test	
Date of Test	



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NO EVAPORATORS.

No. *One* Type *Open* Tons per Day
 Makers *W. L. M. Co.*
 Working Pressure *2.5* Test Pressure *2.5* Date of Test
 Date of Test of Safety Valves under Steam *3/20/11*

(ONE) FEED WATER HEATERS.

No. *1* Type *Exhaust*
 Makers *Holden & Brooks*
 Working Pressure *WALW=180* Test Pressure Date of Test

FEED WATER FILTERS.

No. *01* Type *Pressure* Size *2 1/2"*
 Makers *HENRY*
 Working Pressure *180 lbs* Test Pressure Date of Test

LIST OF DONKEY PUMPS.

2 *6" x 4" x 6"* Feed donkey *H. Watson*
2 *4" x 2 3/4" x 4"* Sanitary donkey *do.*
1 *9" x 11" x 12"* Ballast donkey *H. Watson*
One *1 1/2"* Injector for feeding boiler
 by *G. W. L. & Co.*



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LIST OF SPARE GEAR

No. of Top End Bolts	2	No. of Bot. End Bolts	2	No. of Cylinder Cover Studs	-
" Coupling Bolts	6	" Main Bearing Bolts	2	" Valve Chest "	-
" Junk Ring Bolts	6	" Feed Pump Valves	2	" Bilge Pump Valves	2
" H.P. Piston Rings	-	" I.P. Piston Rings	-	" L.P. Piston Rings	-
" " Springs	-	" " Springs	-	" " Springs	-
" Safety Valve	One	" Fire Bars	29	" Feed Check Valves	One
" Piston Rods	-	" Connecting Rods	-	" Valve Spindles	-
" Air Pump Rods	-	" Air Pump Buckets	-	" Air Pump Valves	3
" Cir. "	-	" Cir. "	-	" Cir. "	-
" Crank Shafts	-	" Crank Pin Bushes	-	" Crosshead Bushes	-
" Propeller Shafts	-	" Propellers	-	" Propeller Blades	4
" Boiler Tubes	3	" Condenser Tubes	3	" Condenser Ferrules	20

OTHER ARTICLES OF SPARE GEAR:-

1 set donkey pump valve - 6 Lubricating gear washers
 1 doz 7. Glasses + washers: 12 assorted studs nuts.
 6 ass. brass studs nuts 3/6 dia. bolts nuts.
 5 6" scape valve springs.

No. REFRIGERATORS

Description	Meters	No. of Machines	Capacity of each	Particulars of Pump in connection with Refrigerating Plant and whether worked by Hydrostatic Machines or Independently	No. of Steam Cylinders, with Jacketing	No. of Compressors	No. of Cylinders
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ELECTRIC LIGHTING.

Installation Fitted by *Iwan Hunter, Wigham Richardson Ltd.*

No. and Description of Dynamos *1 - 7½ H.P. Steam driven Comp. wound.*

Makers of Dynamos *Sunderland Forge Engⁿ Co. Ltd.*

Capacity *68* Amperes, at *110* Volts, *275* Revols. per Min.

Current Alternating or Continuous *Continuous.*

Single or Double Wire System *Double wire system.*

Position of Dynamos *Engine room starboard, aft, on lower platform.*

„ Main Switch Board *near dynamo, lower platform.*

No. of Circuits to which Switches are provided on Main Switch Board *4.*

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.
1. Engine & Boiler rooms	14	25	7.1	7/029	1560	100%	600 Ω
2. Aft Accom ^{da}	27	25	27.5	7/044	2679	Pure Copper	..
	27	16					
3. Fore Accom ^{da}	25	25	18.8	7/064	849
	10	16					
	2	8					
4. Navigation	4	32	5.09	7/036	726
	2	16					

Total No. of Lights *111* No. of Motors driving Fans, &c. *1* No. of Heaters *0*Current required for Motors and Heaters *68*

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

No auxiliary switchboards fitted.

Installation fitted in the Main Switch Board. No. of Switches on each: 11. Description of Dynamometer: 11. Capacity: 110 Volts. Current Rating of Conductors: 11. Single or Double Wire System: 11. Position of Dynamometer: 11. Main Switch Board: 11. No. of Circuits to which switches are provided on Main Switch Board: 11.

Number of Lamps	Current Rating of Lamp	Current Rating of Conductor	Size of Conductor	Current Rating of Lamp	Current Rating of Conductor	Size of Conductor	Number of Lamps
11	11	11	11	11	11	11	11

Are Cut-outs fitted as follows?—

On Main Switch Board, to Cables of Main Circuits

Yes

On Aux. " each Auxiliary Circuit

none fitted

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. *1/044* S.W.G., Largest, No. *1/044* S.W.G.

How are Conductors in Engine and Boiler Spaces protected? *Lead covered + armoured.*

" Saloons, State Rooms, &c., " *Lead covered.*

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp *Lead covered & Armoured.*

(2) " passing through Bunkers or Cargo Spaces *Lead covered - in casing.*

(3) " " Deck Beams or Bulkheads *W.T. Bulkhead flange*

Are all Joints in Cables properly soldered and thoroughly Insulated so that the efficiency of the Cables

is unimpaired? *none made.*

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

Are all Hull Connections for Single-Wire Systems made with Screws of large Surface? *none*

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? *10,000 Ohms.* Ohms.

Is the Installation supplied with a Voltmeter? *Yes. fitted on main switchboard*

" " " an Ampere Meter? *-*

Date of Trial of complete Installation *24th April 23* Duration of Trial *6 hours.*

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

1. 11. 2. 3. 4.

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GENERAL CONSTRUCTION

MAIN BOILER

Sp. L. 2370

DOVEY BOILER

Sp. L. 2370

ENGINE

Cap. L. 2370

Testing fee

Expenses

Total

It is submitted that this Report be approved.

Approved by the Committee for the Class of M.B.E. on the 28th August 1933

Approved by the Committee for the Class of M.B.E. on the 28th August 1933

"Hingetia"

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