

No. 2392

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. 2399 No. in Register Book 3824

" "
S.S. BOUVET. I.

Makers of Engines Smiths Dock Co. Ltd.

Works No. 399.

Makers of Main Boilers Richardson Westgarth & Co. Ltd.

Works No. D. 212.

Makers of Donkey Boiler ✓

Works No. ✓

MACHINERY.



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005061-005068-0148

No.

THE BRITISH CORPORATION FOR THE SURVEY
AND
REGISTRY OF SHIPPING.

Report No. No. in Register Book

Received at Head Office

Surveyor's Report on the New Engines, Boilers, and Auxiliary
Machinery of the ~~Single Triple~~ *Screw* *Whaler.*
"Bauvet. 1."

Official No.

Port of Registry *Tromsberg.*

Registered Owners

Aktieselskabet. Aivila.

Engines Built by

at

Main Boilers Built by

at

Donkey

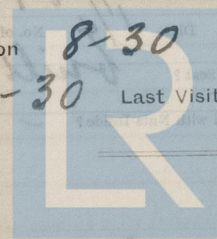
at

Date of Completion

First Visit *1-4-30*

Last Visit *27-8-30*

Total Visits *36.*



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RECIPROCATING ENGINES.

Works No. **399** No. of Sets **1** Description **Triple expansion. S.P. 3 crks.**

No. of Cylinders each Engine **3** No. of Cranks **3**
 Diars. of Cylinders **14" - 23" - 39"** Stroke **24"**
 Cubic feet in each L.P. Cylinder **16.6**

Are Spring-loaded Relief Valves fitted to Top and Bottom of each Cylr? **yes.**

" " each Receiver? **yes.**

Type of H.P. Valves,

1st I.P. "

2nd I.P.,

L.P. "

" Valve Gear

" Condenser

Diameter of Piston Rods (plain part)

Material "

Diar. of Connecting Rods (smallest part)

" Crosshead Gudgeons

No. of Crosshead Bolts (each)

" Crank Pin " "

" Main Bearings

" Bolts in each

" Holding Down Bolts, each Engine

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?

No. of Cranks

Stroke

yes.

yes.

piston slides.

slide.

Stephenson link.

Cooling Surface **925** sq. ft.

Screw part (bottom of thread)

Material

Material

Material

Material

Material

Material

No. of Metal Chocks

built seat.

Connecting Rods, Forged by

Piston " "

Crossheads,

Connecting Rods, Finished by

Piston " "

Crossheads,

Date of Harbour Trial

" Trial Trip

Trials run at

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

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

Pressure in 1st I.P. Receiver,

Speed on Trial

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

data:—

Builders' estimated I.H.P.

Estimated Speed

Brown Bros.

Smith's S.K.C.

26-8-30

27-8-30

In Gas Bar.

Revs. per min. **154**

Pressure in 1st I.P. Receiver, **60** lbs., 2nd I.P., **11** lbs., Vacuum, **26** ins.

no chas taken.

12 knots.

Revs. per min.



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TURBINE ENGINES.

Works No. Type of Turbines

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

Are the Propeller Shafts driven direct by the Turbines or through Gearing? 3

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

DESCRIPTION OF INSTALLATION.

No. of Turbine Generating Sets

Type of Turbines employed

Description of Installation

No. of Motors driving Propeller Shafts

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 } Width

" 1st " Wheel

Estimated Pressure per lineal inch

Diam. of 2nd Reduction Pinion } Width

" 2nd " Wheel

Estimated Pressure per lineal inch

Revs. per min. of Motors at Full Power

" " " "

" " 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



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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

} 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

Revol. 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 Revol. 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

Actual

7 1/2"

In Way of Webs

7 1/2"

" of Crank Pins

7 1/2"

Length between Webs

9 3/8"

Greatest Width of Crank Webs

14 1/2"

Thickness

4 1/16"

Least " "

11 1/4"

"

3 7/8"

Diar. of Keys in Crank Webs

1 1/4"

Length

3 7/8"

" Dowels in Crank Pins

1"

Length

3 1/2"

Screwed or Plain

plain.

No. of Bolts each Coupling

4

Diar. at Mid Length

2 1/8"

Diar. of Pitch Circle

11 3/4"

Greatest Distance from Edge of Main Bearing to Crank Web

1/8"

Type of Thrust Blocks

Michel.

No. " Rings

1.

Diar. of Thrust Shafts at bottom of Collars

7 1/2"

No. of Collars

2

" " Forward Coupling

7 1/8"

At Aft Coupling

2 1/8"

Diar. of Intermediate Shafting by Rule

✓

Actual

No. of Lengths

No. of Bolts, each Coupling

Diar. at Mid Length

Diar. of Pitch Circle

Diar. of Propeller Shafts by Rule

Actual

8"

At Coupling

7 1/2"

Are Propeller Shafts fitted with Continuous Brass Liners?

yes.

Diar. over Liners

9 1/4" & 9 5/16"

Length of After Bearings

3 1/2"

Of what Material are the After Bearings composed?

Lignum Vitae.

Are Means provided for lubricating the After Bearings with Oil?

no

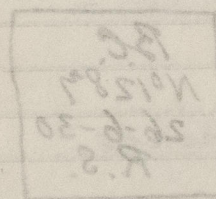
" " to prevent Sea Water entering the Stern Tubes?

no

If so, what Type is adopted?

open to sea.

SKETCH OF CRANK SHAFT.



*Sketch of crank shaft
- (see sketch of after bearing)*



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B.C.
Nº 1287
26-6-30
R. S.

PUMPS, ETC.

No. of Air Pumps

1

Diar.

13"

Stroke

12"

Worked by Main or Independent Engines?

main engines.

No. of Circulating Pumps

1

Diar.

Stroke

Type of

"

Centrifugal

Diar. of

"

Suction from Sea

Has each Pump a Bilge Suction with Non-return Valve?

yes.

Diar.

2 1/2"

What other Pumps can circulate through Condenser?

General Services.

No. of Feed Pumps on Main Engine

2

Diar.

3"

Stroke

12"

Are Spring-loaded Relief Valves fitted to each Pump?

yes.

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

yes.

No. of Independent Feed Pumps

-

Diar.

Stroke

-

What other Pumps can feed the Boilers?

General Services.

No. of Bilge Pumps on Main Engine

2

Diar.

3"

Stroke

12"

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

yes.

No. of Independent Bilge Pumps

-

What other Pumps can draw from the Bilges?

General Services.

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?

above

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.

BOILERS

Works No.

No. of Boilers

Single or Double-ended

No. of Boilers 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 Examination Test

Examination Pressure under Examination Test

Amount of Stowage

Can Boilers be worked separately?

Number of Flues

Stay Bars

Rivets

Furnaces

Greatest Internal Diam. of Boilers

Length

Square Feet of Heating Surface

Date

No. of Stays per Square Foot

No. of Stays per Square Foot

No. of Stays per Square Foot

Two Cocks



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

direct.

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?

valves.

No. of Strakes of Shell Plating in each Boiler

1

Plates in each Strake

2

Thickness of Shell Plates Approved

1 1/4"

" " in Boilers

1 1/4"

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

3/32"

" inside "

1 3/32"

Are Longitudinal Seams Hand or Machine Riveted?

machine.

Are they Single, Double, or Treble Riveted?

treble

No. of Rivets in a Pitch

5

Diam. of Rivet Holes

1 5/16"

Pitch

8 3/4"

No. of Rows of Rivets in Centre Circumferential Seams

5

Are these Seams Hand or Machine Riveted?

hand.

Diam. of Rivet Holes

1 1/4"

Pitch

3.64

No. of Rows of Rivets in Front End Circumferential Seams

2

Are these Seams Hand or Machine riveted?

hand.

Diam. of Rivet Holes

1 1/4"

Pitch

3.64

No. of Rows of Rivets in Back End Circumferential Seams

2

Are these Seams Hand or Machine Riveted?

machine.

Diam. of Rivet Holes

1 1/4"

Pitch

3.64

Size of Manholes in Shell

16" x 12"

Dimensions of Compensating Rings

2'-8" x 2'-4" x 1 1/4"



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Thickness of End Plates in Steam Space Approved

 $1\frac{3}{16}$ "*direct*

" " " " " in Boilers

 $1\frac{3}{16}$ "

Pitch of Steam Space Stays

 $19\frac{1}{2}$ " x 18"

Diar. " " " " Approved

 $3\frac{1}{8}$ " Threads per Inch 6

" " " " " in Boilers

 $3\frac{1}{8}$ " 6

Material of " " "

steel.

How are Stays Secured?

double-nuts washers.

Diar. and Thickness of Loose Washers on End Plates

 11 " x $1\frac{3}{16}$ "

" " 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

 $13\frac{1}{2}$ " x $8\frac{1}{8}$ "

Diar. of Stays Approved

 $1\frac{7}{8}$ " Threads per Inch 9

" " in Boilers

 $1\frac{7}{8}$ " 9

Material "

steel.

Are Stays fitted with Nuts outside?

yes.

Thickness of Back End Plates at Bottom Approved

 $15\frac{1}{16}$ "

" " " " " in Boilers

 $16\frac{1}{16}$ "

Pitch of Stays at Wide Spaces between Fireboxes

 $13\frac{1}{2}$ " x $8\frac{1}{8}$ "

Thickness of Doublings in " "

-

Thickness of Front End Plates at Bottom Approved

 $1\frac{7}{8}$ "

" " " " " in Boilers

 $1\frac{7}{8}$ "

No. of Longitudinal Stays in Spaces between Furnaces

1



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Diar. of Stays Approved

2 1/2"

Threads per Inch

9

" " in Boilers

2 1/2"

9

Material "

steel.

Thickness of Front Tube Plates Approved

3/8"

" " " " in Boilers

3/8"

Pitch of Stay Tubes at Spaces between Stacks of Tubes

13 1/2" x 7 1/4"

Thickness of Doublings in

" " "

3/8" 7/16"

" Stay Tubes at

" " "

3/8" 7/16"

Are Stay Tubes fitted with Nuts at Front End

yes.

Thickness of Back Tube Plates Approved

3/4"

" " " in Boilers

3/4"

Pitch of Stay Tubes in Back Tube Plates

10 1/8" x 4 1/2"

" Plain "

3 3/4" x 3 7/8"

Thickness of Stay Tubes

1 7/8"

1 7/8" 3/8" 7/16"

" Plain "

1 7/8"

External Diar. of Tubes

2 1/2"

Material "

Iron.

Thickness of Furnace Plates Approved

9/32"

" " " in Boilers

9/32"

Smallest outside Diar. of Furnaces

3'-4 15/16"

Length between Tube Plates

8'-0"

Width of Combustion Chambers (Front to Back)

2'-7 15/16"

Thickness of " " Tops Approved

2 1/32"

" " " in Boilers

2 1/32"

Pitch of Screwed Stays in C.O. Tops

8 x 7 1/2"



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VERTICAL DONKEY BOILERS.

No. of Boilers	Type	Height
Greatest Int. Diar.		
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 Lasing Gear?

Date of Hydraulic Test

Test Pressure

Date when Safety Valves set

Pressure on Valves

MAIN STEAM PIPES

No. of Pipes		
Material		
Internal Radius of Dished Ends		
Internal Diar.		
Thickness		
How are Flanges secured?		
Date of Hydraulic Test		
Test Pressure		
No. of Pipes		
Material		
Internal Radius of Dished Ends		
Internal Diar.		
Thickness		
How are Flanges secured?		
Date of Hydraulic Test		
Test Pressure		



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MAIN STEAM PIPES.

No. of Lengths

Material

Brazed, Welded or Seamless

Internal Diam.

Thickness

How are Flanges secured?

Date of Hydraulic Test

Test Pressure

1	1
copper.	copper.
4 1/2"	S. D.
4 wll.	4 1/2"
braked.	4 wll.
20-8-30	braked.
20-8-30	20-8-30
400 lbs.	400 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

FEED WATER HEATERS

FEED WATER FILTERS



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EVAPORATORS.

No. 1 Type *W. Lewis* 10 Tons per Day @
 Makers *W. Lewis Co.*
 Working Pressure *15 lbs.* Test Pressure *50 lbs.* Date of Test *13-8-30.*
 Date of Test of Safety Valves under Steam *26-8-30*

FEED WATER HEATERS.

No. 1 Type ~~*Halden + Brook*~~ @
 Makers ~~*Halden + Brook*~~ *Caird + Raynor*
 Working Pressure *200 lbs.* Test Pressure *400 lbs.* Date of Test *1/7/30*

FEED WATER FILTERS.

No. 1 Type *Cascade* Size
 Makers *Smith & Co.*
 Working Pressure Test Pressure Date of Test

LIST OF DUNDEY PUMPS.

Duplex General Service 6 x 4 1/4" x 6"
7" Centrifugal Pump.



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OTHER ARTICLES OF SPARE GEAR:—

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

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.
Capacity	40	11	350	
Current after trial				
Single or Double Wire System				
Position of Platform				
No. of Cylinders in Water			4	
Articles of Spare Gear for Refrigerating Plant carried on board:—				



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REFRIGERATORS

MILITARY SERVICE

No. of Machines	Capacity of each	No. of Motors	No. of Compressors	No. of Condensers

No. of Motors	No. of Compressors	No. of Condensers

Particulars of Storage or Accumulation with Refrigerating Plant and whether worked by Refrigerating Machine

No. of Motors

ELECTRIC LIGHTING.

Installation Fitted by

R. Pickens & Sons.

No. and Description of Dynamos

1. Compound wound
Lundell and Torrey & Co. Ltd.

Makers of Dynamos

Capacity

40

Amperes at

110

Volts

350

Revol. per Min.

Current Alternating or Continuous

Continuous.

Single or Double Wire System

Double

Position of Dynamos

Starting platform.

Main Switch Board

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.
Navigation	11	330	3.3	7/0.29			
Engin. Rm.	23	690	6.9	7/0.36			
Midships	18	240	5.4	7/0.29			
Wireless	1/4	1/4	10	7/0.36			

Total No. of Lights

52

No. of Motors driving Fans, &c.

No. of Heaters

Current required for Motors and Heaters

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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

On Aux. " " each Auxiliary Circuit

Wherever a Cable is reduced in size

To each Lamp Circuit

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

Are the Fuses of Standard Sizes?

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

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

Smallest Single Wire used, No. 1544 S.W.G., Largest No. 19/044 S.W.G.

How are Conductors in Engine and Boiler Spaces protected?

" " Saloons, State Rooms, &c., " ?

What special protection is provided in the following cases?—

(1) Conductors exposed to Heat or Damp

(2) " passing through Bunkers or Cargo Spaces

(3) " " Deck Beams or Bulkheads

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

is unimpaired?

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?

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

Has the Insulation Resistance over the whole system been tested?

What does the Resistance amount to?

Ohms.

Is the Installation supplied with a Voltmeter?

" " " an Ampere Meter

Date of Trial of complete Installation

Duration of Trial

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



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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.

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.

"BOUVET. I."

as ascertained by *me* from personal examination

J.D. Stephenson

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

Fees—

MAIN BOILERS.

	£	s.	d.
H.S. <i>2292</i> Sq. ft.	:	:	:
G.S. <i>55.7</i> "	:	:	:

DONKEY BOILERS.

H.S.	Sq. ft.	:	:
G.S.	"	:	:
	£	:	:

ENGINES.

L.P.C. <i>16.6</i> Cub. ft.	:	:
	£	:
Testing, &c.	:	:
	£	:
Expenses	:	:
Total ... £	:	:

It is submitted that this Report be approved,

John King
Chief Surveyor.

Approved by the Committee for the Class of M.B.S.* on the *26th* November 1930

Fees advised

Fees paid

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Secretary.

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