

REPORT ON OIL ENGINE MACHINERY.

No 99300

Received at London Office

MAR 27 1941

Date of writing Report

19

When handed in at Local Office

15/3/1941 Port of

NEWCASTLE-ON-TYNE

No. in Survey held at
Reg. Book.

Newcastle on Tyne

Date, First Survey

23 Feb 1940

Last Survey

4 March 1941

Number of Visits

98.

Single
on the Twin
Triple
Quadruple
Screw vesselECHODALE.Tons Gross 8150
Net 4788

Built at

Hetherington on Tyne

By whom built

R & W Hawthorn, Leslie & Co. Ltd

Yard No.

628

When built

1941

Engines made at

St Peter's, Newcastle

By whom made

do

do

Engine No.

3967

When made

1941

Donkey Boilers made at

ditto

By whom made

do

do

Boiler No.

3967

When made

1941

Brake Horse Power

3500

Owners

Port belonging to

Nom. Horse Power as per Rule

502.

Is Refrigerating Machinery fitted for cargo purposes

No

Is Electric Light fitted

Yes.

Trade for which vessel is intended

Carrying Petroleum in bulk - Ocean going

OIL ENGINES, &c.—Type of Engines Hawthorn Workshops, Supercharged 4 stroke cycle 4, Single or double acting Single.

Maximum pressure in cylinders

700 lb/sq in

Diameter of cylinders

650 mm

Length of stroke

1400 mm

No. of cylinders

8

No. of cranks

8.

Mean Indicated Pressure

135 lb/sq in

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge

844 mm

Is there a bearing between each crank

Yes

Revolutions per minute

120

Flywheel dia.

2260 mm

Weight

6000 Kg.

Means of ignition

Heat of Compression

Kind of fuel used

Heavy oil.

Crank Shaft,
Solid forged
Semi-forged
All built

dia. of journals

as per Rule 448 mm
as fitted 460.

Crank pin dia.

460 mm

Crank Webs

Mid. length breadth 870 mm
Mid. length thickness 267 mm

Thickens parallel to axis

267 mm
Thickens around eyehole

204 mm

Flywheel Shaft, diameter

as per Rule 448 mm
as fitted 460.

Intermediate Shaft, diameter

as per Rule 325 mm
as fitted 470 mm

Thrust Shaft, diameter at collars

as per Rule 341 mm
as fitted 460 mm

Tube Shaft, diameter

as per Rule NONE.
as fitted

Screw Shaft, diameter

as per Rule 385 mm
as fitted 400 mm

Is the screw shaft fitted with a continuous liner

Yes

Bronze Liners, thickness in way of bushes

as per Rule 18.55 mm
as fitted 20 mm

Thickness between bushes

as per Rule 13.9 mm
as fitted 15 mm

Is the after end of the liner made watertight in the

propeller boss

Yes.

If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

in one piece.

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive.

a tight fit.

If two liners are fitted, is the shaft lapped or protected between the liners

No

Is an approved Oil Gland or other appliance fitted at the after end of the tube

No

If so, state type

Length of Bearing in Stern Bush next to and supporting propeller

1585 mm

Propeller, dia.

15'0"

Pitch

12'0"

No. of blades

4

Material

manag. Brzg.

whether Moveable

Solid

Total Developed Surface

72 sq. feet

Method of reversing Engines

By Air Servo-motor

Is a governor or other arrangement fitted to prevent racing of the engine when disengaged

Yes.

Means of lubrication

Forced

Thickness of cylinder liners

55 mm

Are the cylinders fitted with safety valves

Yes

Are the exhaust pipes and silencers water cooled or lagged with

non-conducting material

Lagged

If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine

Led to top of funnel.

Cooling Water Pumps, No.

Two 1-Rotary on Main Eng.
1-Centrifugal-Steam

Is the sea suction provided with an efficient strainer which can be cleared within the vessel

Yes.

Bilge Pumps worked from the Main Engines, No.

Two

Diameter Rotary

Stroke

Can one be overhauled while the other is at work

Yes.

Pumps connected to the Main Bilge Line

No. and Size

THREE IN ALL viz. TWO Rotary each 35 tons/hr.
by Main Engine

ONE G.S.P. 8'x8'x10' duplex

100 tons/hour

by indep. Steam Eng.

Is the cooling water led to the bilges

No

If so, state what special arrangements are made to deal with this water in addition to the ordinary bilge pumping arrangements

Ballast Pumps, No. and size

One G.S.P. 8'x8'x10' DUPLEX.

Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size

One Rotary on Main Eng.
One Standby 8'x8'x10' Duplex

Are two independent means arranged for circulating water through the Oil Cooler

Yes.

Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Machinery Spaces

10 3/4" AFT

2 1/2" For 1 Port

2 1/2" in LUB. OIL COFFER DAM (FOR 1 AFT)

In Pump Room

one 2 1/2" in Hydrophonic Comp.

main (suction) one 2 1/2"

In Holds, &c.

In For Hold 2 1/2"

In For Store 2 1/2"

In For 1 Aft Cofferdam

one 4" in each

one 7" Emergency on Self C.W. Pump

on Self side

Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size

one 5" G.S.P. Pump

one 7" Emergency on Self C.W. Pump

on Self side

Are all the Bilge Suction pipes in Holds and Tunnels fitted with strum-boxes

Yes.

Are the Bilge Suctions in the Machinery Spaces

led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

Yes.

Are all Sea Connections fitted direct on the skin of the ship

Yes.

Are they fitted with Valves or Cocks

with both.

Are they fixed sufficiently high on the ship's side to be seen without lifting the platform plates

Yes

Are the Overboard Discharges above or below the deep water line

Above.

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel

Yes

Are the Blow Off Cocks fitted with a spigot and brass covering plate

Yes.

What pipes pass through the bilges

O.F. 1 1/2" Suction from AFT COFFER DAM.

How are they protected

none necessary.

What pipes pass through the deep tanks

None.

Have they been tested as per Rule

Yes.

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one compartment to another

Yes

Is the Shaft Tunnel watertight

No TUNNEL.

Is it fitted with a watertight door

worked from

If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork

Main Air Compressors, No.

None

No. of stages

120 cub ft of free air/min

Diameters

350 mm

Stroke

Driven by

Auxiliary Air Compressors, No.

Two

No. of stages

Each 2 stages

Diameters

See Spurch Cert D 3763 of 30/4/40.

Stroke

Driven by

Ruston & Hornsby oil eng.

Small Auxiliary Air Compressors, No.

None

No. of stages

Diameters

Stroke

Driven by

one other " " Steam Engine

What provision is made for first Charging the Air Receivers

by Steam driven Air Compressor

Scavenging Air Pumps, No.

None

Diameter

Stroke

Driven by

2. Steam + 2 oil Eng.

Auxiliary Engines crank shafts, diameter

as per Rule

See Amsterdam Rpt 15847

as fitted

+ Nottingham Cert/No C.43.

Position

Oil Eng. 1 ft 15 in E. Eng. Steam Eng. ditto.

Have the Auxiliary Engines been constructed under special survey

Yes

Are reports sent herewith

See Amsterdam Rpt 15847

for Ruston & Hornsby oil Eng

for Nottingham Cert/No C.43. of 15/11/40

6810-165200-385200

AIR RECEIVERS:—Have they been made under survey Yes. State No. of Report or Certificate Letter to 550 HWT. per bel

Is each receiver, which can be isolated, fitted with a safety valve as per Rule Yes.

Can the internal surfaces of the receivers be examined and cleaned Yes

Is a drain fitted at the lowest part of each receiver Yes.

Injection Air Receivers, No. NONE

Cubic capacity of each —

Internal diameter —

thickness —

Seamless, lap welded or riveted longitudinal joint —

Material —

Range of tensile strength —

Working pressure —

by Rules —

Actual —

Starting Air Receivers, No. Two

Total cubic capacity 800 CUB. FT.

Internal diameter 4'-10 7/8"

thickness 27/32"

~~Seamless, lap welded or riveted longitudinal joint~~ T.R.

Material STEEL

Range of tensile strength 28 to 32 Tons

Working pressure —

by Rules 872 LBS/SQ. IN.

Actual 350 " "

IS A DONKEY BOILER FITTED? Yes.

If so, is a report now forwarded? Yes.

Is the donkey boiler intended to be used for domestic purposes only No.

ALSO FOR STEAM AUXILIARIES.

PLANS. Are approved plans forwarded herewith/for Shifting No.

(If not, state date of approval) 6/11/39.

Starting Air Receivers 20/9/39.

Separate Fuel Tanks 22/12/39

Donkey Boilers 19/9/39

General Pumping Arrangements 14/1/41

Pumping Arrangements in Machinery Space 22/12/39

Oil Fuel Burning Arrangements 22/12/39

SPARE GEAR.

Has the spare gear required by the Rules been supplied Yes

as per List attached.

State the principal additional spare gear supplied —

The foregoing is a correct description,

R. & W. HAWTHORNE & CO. LIMITED

R.B. Johnson

Manufacturer.

Dates of Survey while building
During progress of work in shops -- 1940
Feb. 23, Mar. 7, 26, Apr. 1, 3, 10, 15, 17, 19, 26, 29, 30, May 4, 6, 10, 13, 15, 27, June 3, 6, 12, 14, 18, 21, 25, July 1, 3, 5, 9, 11, 15, 16, 19, 23, 24, 25, 26, 30, 31, Aug. 1, 7, 9, 13, 15, 16, 19, 20, 22, 23, 28, 29, 30, Sep. 3, 4, 5, 9, 10, 11, 17, 18, 20, 23, 24, 27, Oct. 1, 2, 4, 8, 10, 11, 14, 17, 24, 29, Nov. 6, 12, 18, 19, 22, 25, Dec. 13, 18, 20, 24, 27, 31, 1941 Jan. 4, 9, 10, 14, 24, 27, 30, Feb. 14, Mar. 4.
Total No. of visits 98.
Dates of Examination of principal parts—Cylinders 19/7/40 to 24/9/40 Covers as Cylns Pistons 21/5/40 to 6/6/40 Rods 7/8/40 Connecting rods 2/9/40 to 12/11/40
Crank shaft 1/10/40 Flywheel shaft 23/3/40 Thrust shaft 23/8/40 Intermediate shaft 25/11/40 Tube shaft —
Screw shaft 22/8/40 Propeller 22/8/40 Stern tube 19/11/40 Engine seatings 22/11/40 Engines holding down bolts 24/12/40
Completion of fitting sea connections 22/11/40 Completion of pumping arrangements 14/2/41 Engines tried under working conditions 4/3/41
Crank shaft, Material 7 Steel Identification Mark 9909 HAI Flywheel shaft, Material 7 Steel Identification Mark S106.CSP
Thrust shaft, Material 7 Steel Identification Mark S107.CSP. Intermediate shaft, Material 7 Steel Identification Marks 9477 HAI.
Tube shaft, Material none Identification Mark — Screw shaft, Material 7 Steel Identification Mark 9162 HAI F4216
Identification Marks on Air Receivers Lloyds test 550 lbs. WP 350 lbs. 29/4/40 Space Se. Sh " " " " 9477 HAI. F4295.

Is the flash point of the oil to be used over 150° F. Yes

Have the requirements of the Rules for oil fuel pipes and tank fittings been complied with Yes

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo Yes

If so, have the requirements of the Rules been complied with —

If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with —

Is this machinery duplicate of a previous case Yes

If so, state name of vessel Empire Bronze

Hwt. Rpt. 98948.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The Machinery of this Vessel has been constructed under Special Survey in accordance with the Society's Rules and the approved plans. The materials & workmanship are good. The Machinery has been satisfactorily installed on board the vessel. and tested under working conditions, and is eligible, in my opinion for record + LMC: 3:41, and the notation DB. WP 180 lbs. TS a. Oil Eng. machy aft.

The amount of Entry Fee .. £ 6 : - : When applied for,
Special £ 100 : 2 : 24 MAR. 1941
Donkey Boiler Fee £ 23 : 6 :
Two Starting Air Receivers Fee £ 8 : 8 :
Travelling Expenses (if any) £ : : When received, 19..

Committee's Minute

Assigned

+ Lmb. 3. 41
DB. - 180 lbs

oil eng
Ch.

A Watt

Engineer Surveyor to Lloyd's Register of Shipping.



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Lloyd's Register
Foundation