

# REPORT ON OIL ENGINE MACHINERY.

No. 105673

1 NOV 1948

Date of writing Report 30-10-1948 When handed in at Local Office

9-NOV 1948

Received at London Office **NEWCASTLE-ON-TYNE**

Port of **NEWCASTLE-ON-TYNE** Date, First Survey 18<sup>th</sup> JUNE 1947 Last Survey 27<sup>th</sup> OCT 1948

Survey held at **Newcastle**

Single on the **ATHELKNIGHT** Tons Gross Net

built at **Sunderland** By whom built **Sir James Laing & Co. Ltd** Yard No. **779** When built **1948**  
engines made at **Wallsend** By whom made **N.E. Mar. Eng. Co (1938) Ltd.** Engine No. **3153** When made **1948**  
boilers made at **ditto** By whom made **ditto** Boiler No. **3153** When made **1948**  
Horse Power **4350** Owners **ATHEL LINE** Port belonging to **LONDON**  
N. Power as per Rule **902** Is Refrigerating Machinery fitted for cargo purposes **No** Is Electric Light fitted **Yes**  
made for which vessel is intended **Ocean going**

TYPE OF ENGINES, &c. — Type of Engines **Opposed piston type** 2 or 4 stroke cycle **2 St.** Single or double acting **Single acting**  
Maximum pressure in cylinders **640 lbs/sq in** Diameter of cylinders **670 mm** Length of stroke **1320 mm** No. of cylinders **4** No. of cranks **Three-throw**  
Mean Indicated Pressure **189 lb.** Ahead Firing Order in Cylinders **1.3.4.2.** Span of bearings, adjacent to the crank, measured **3-throw**  
Diameter of flywheel **1710** Weight **3.75 tons** Moment of inertia of flywheel **14.5** Means of ignition **Compression** Kind of fuel used **Heavy oil fuel**  
Diameter of journals **500** Crank pin dia. **500** Crank webs **SOLID** Mid. length thickness **215** Thickness around eyehole **220**  
Shaft, diameter **22 3/4** Thrust Shaft, diameter at collars **500**  
Screw Shaft, diameter **20** Is the shaft fitted with a continuous liner **Yes**

Propeller, dia. **16'6"** Pitch **13'10"** No. of blades **4** Material **Brge.** whether moveable **No** Total developed surface **106** sq. feet  
Kind of damper, if fitted **Bobby De-tuner**  
Method of reversing Engines **Compressed air by hand lever** Is a governor or other arrangement fitted to prevent racing of the engine when de-clutched **Yes**  
Thickness of cylinder liners **25 mm** Are the cylinders fitted with safety valves **Yes** Are the exhaust pipes and silencers water cooled **Yes**

Oil Pumps worked from the Main Engines, No. **NIL** Diameter **130 x 450** Stroke **4.2** Can one be overhauled while the other is at work **Yes**  
Bilge Pumps connected to the Main Bilge Line **3 PUMPS: Ballast 12 1/2 x 15 1/2 x 24; Sanitary 7 1/2 x 8 x 18; Bilge & Free 100 ton/hr**  
How driven **by steam, by steam, by Elec motor**  
Are 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 **Yes**

Ballast Pumps, No. and size **One 12 1/2 x 15 1/2 x 24** Power Driven Lubricating Oil Pumps, including spare pump, No. and size **1 by M. Eng. 130 x 450 = 4.2 tons/hr**  
Are two independent means arranged for circulating water through the Oil Cooler **Yes** Suctions, connected to both main bilge pumps and auxiliary **1 Standby 8 1/2 x 9 x 18 = 4.5 ton/hr**  
Large pumps, No. and size:—In machinery spaces **3 of 3 1/2"; 1 of 2 1/2" at Cofferdam; 2 of 2" at fore end** In pump room **at 2 ft, med. 1 1/2" + 1 1/2"**

Independent Power Pump Direct Suctions to the engine room bilges, No. and size **2 of 5 1/2" (one Port + one Starboard)**  
Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes **Yes** Are the bilge suction 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 efficiently 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 **both**

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**  
That pipes pass through the bunkers **NIL** How are they protected **—**  
That pipes pass through the deep tanks **NIL** Have they been tested as per Rule **—**  
Are all pipes, cocks, valves and pumps in connection with the machinery and all boiler mountings accessible at all times **Yes**

Is the shaft tunnel watertight **NIL** 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. **2** No. of stages **—** diameters **—** stroke **—** driven by **—**  
Auxiliary Air Compressors, No. **2** No. of stages **—** diameters **—** stroke **—** driven by **Steam Sugs.**  
Small Auxiliary Air Compressors, No. **NIL** No. of stages **—** diameters **—** stroke **—** driven by **—**  
That provision is made for first charging the air receivers **Steam driven Air Compressors**  
Savenging Air Pumps, No. **One double acting** diameter **1550 mm** stroke **1320 mm** driven by **Main Engine**  
Auxiliary Engines crank shafts, diameter **—** No. **3 sets of 50 Kw each (one Oil Supd + two Steam)** Position **ALL IN MAIN ENG. ROOM**  
Have the auxiliary engines been constructed under special survey **Yes** Is a report sent herewith **Yes for ENG. CERTS FOR STEAM ENGS.**

CONTD. OVER

2510-422400-19248

**AIR RECEIVERS:**—Have they been made under survey *Yes* State No. of report or certificate *✓*  
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule *Yes*, *Safety valves also on Air Compressors.*  
 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.** *✓* Cubic capacity of each *✓* Internal diameter *✓* thickness *✓*  
 Seamless, welded or riveted longitudinal joint *✓* Material *✓* Range of tensile strength *✓* Working pressure *✓*  
**Starting Air Receivers, No.** *2* Total cubic capacity *300 cubft* Internal diameter *4'-0 1/4"* thickness *1 3/32"*  
 Seamless, welded or riveted longitudinal joint *Riveted* Material *M Stl* Range of tensile strength *29 to 33 tons* Working pressure *600*

**DONKEY BOILERS:** *ARE* **FITTED** *Yes* If so, is a report now forwarded *Yes*  
 Is the donkey boiler intended to be used for domestic purposes only *No.*  
**PLANS.** Are approved plans forwarded herewith for shafting *Cranksaft 10-10-46* *Starlingdr* *27-2*  
*Line shafting 11-6-47* Receivers *10-9-47* Separate fuel tanks *✓*  
 (If not, state date of approval)  
 Donkey boilers *17-1-47* General pumping arrangements *✓* Pumping arrangements in machinery space *14-4-48*  
 Oil fuel burning arrangements *14-4-48*

Have Torsional Vibration characteristics been approved *Yes* Date of approval *26<sup>th</sup> Aug. 1947*  
**SPARE GEAR.**  
 Has the spare gear required by the Rules been supplied *Yes*  
 State the principal additional spare gear supplied *1 Cyl liner complete, 2 Piston Heads, 1 upper + 1 lower piston SKI*  
*1 upper + 1 lower Piston Rods, 4 Fuel Valves, etc etc.*

**THE NORTH EASTERN MARINE ENGINEERING CO. (1938) LTD.**  
 The foregoing is a correct description, and the particulars of the installation, as fitted, are as approved for torsional vibration characteristics.  
 Manufacturer *M. H. H. H.*

Dates of Survey while building	DIRECTOR	11/47	JUNE 18	AUG. 20, SEPT. 8, 15, 17, 18, OCT. 10, 17, 21, 27, 31, NOV. 5, 6, 7, 20, 25, 26, 27, DEC. 1, 3, 5, 9, 11, 12, 15, 17, 19, 22, 1948	JAN. 6, 7, 12, 13, 15,
	During progress of work in shops - -	20, 26, 27, 29, 30	FEB. 2, 3, 12, 17, 23, 24, 25, 26, 27	MAR. 1, 2, 3, 5, 8, 9, 10, 16, 17, 18, 19, 22, 23, 30	APR. 1, 2, 6, 7, 8, 9, 12, 13, 14, 15, 16,
	During erection on board vessel - -	23, 26	MAY 4, 6, 10, 11, 12, 13, 19, 28, 31, JUNE 2, 3, 4, 9, 11, 16, 17, 18, 22, 23, 25, 28, 30, JULY 2, 7, 13, 14, AUG 20, 27, 28, Oct. 26, 27		
	Total No. of visits	111			

Dates of examination of principal parts—Cylinders *15-9-47 to 22-12-47* Pistons *9-3-48* Rods *9-3-48* Connecting rods *9-3-48*  
 Crank shaft *27-11-47* Flywheel shaft *27-11-47* Thrust shaft *27-11-47* Intermediate shafts *23-4-48* Tube shaft *✓*  
 Screw shaft *16-4-48* Propeller *at ship 16-4-48* Stern tube *at ship 7-4-48* Engine seatings *10-5-48* Engine holding down bolts *16-6-48*  
 Completion of fitting sea connections *23-4-48* Completion of pumping arrangements *15-7-48* Engines tried under working conditions *at sea 26<sup>th</sup> 47*  
 Crank shaft, material *M. Stl* Identification mark *LLOYDS 6789 J.D* Flywheel shaft, material *M Stl* Identification mark *40 Crank S*  
 Thrust shaft, material *✓* Identification mark *25-7-47* Intermediate shafts, material *M Stl* Identification marks *S1111 EB, S1448*  
 Tube shaft, material *✓* Identification mark *✓* Screw shaft, material *M. Stl* Identification mark *WORKING. S1168 EB*  
 Identification marks on air receivers *STARTING LLOYDS TEST 800 LBS W.P. 600 LBS PORT. 1-4-48 STARBOARD 2-4-48 AW.* *SPARE. S1193 EB.*

Welded receivers, state Makers' Name *✓*  
 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*  
 Description of fire extinguishing apparatus fitted *Steam fire smothering in Blr Rm. also 10 of 2 gallon Chemical + 1 of 10 gallon*  
 Is the vessel (not being an oil tanker) fitted for carrying oil as cargo *✓* 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 *not desired*  
 Is this machinery duplicate of a previous case *No* If so, state name of vessel *✓*

**General Remarks** (State quality of workmanship, opinions as to class, &c. *The machinery of this vessel has been constructed and fitted on board under special survey in accordance with the approved plans and the Society's Rules, and the materials and workmanship are good. The machinery was tested under full working conditions at sea and found satisfactory, and is eligible in my opinion for record + LMC, 10.48, and the notations Machy aft. 2 DB WP 180lb, TS CL.*

The amount of Entry Fee ... £ *255 - 8/-* When applied for *9 NOV 1948*  
 Special ... £ *17 - 4/-* When received *19*  
 2 Donkey Boilers Fee... £ *61 - 6/-*  
 2 Starting Air Receivers (150 ft<sup>3</sup>) each £ *8 - 0/-*  
 Travelling Expenses (if any) £ *✓*  
 Committee's Minute *FRI, 3 DEC 1948*  
 Assigned *+ LMC 10.48 Oil Eng C.L. 2 DB 180lb.*



Certificate (if required) to be sent to  
 The Surveyors are requested not to write on or below the space for Committee's Minute.