

## REPORT ON OIL ENGINE MACHINERY.

No. 82473

Received at London Office 9 MAR 1928  
NEWCASTLE-ON-TYNE

Date of writing Report 28th Feb 1928 When handed in at Local Office 25th Feb 1928 Port of NEWCASTLE-ON-TYNE  
No. in Survey held at Newcastle on Tyne Date, First Survey 8th Feb 1927 Last Survey 27th Feb 1928  
Reg. Book. Number of Visits 139.

40019 on the <sup>Single</sup> ~~Twin~~ <sup>Triples</sup> Screw vessel *Belpanela*  
Built at *Halker, Newcastle* By whom built *Lt. W. E. Armstrong* Yard No. 1028 When built 1928  
Engines made at *Clarke do* By whom made *do* Engine No. 67 When made 1928  
Donkey Boilers made at *Amman* By whom made *Cochran & Co. Amman* Boiler No. 10522 When made 1928  
Brake Horse Power 1350 Owners *A. J. R. R. Belvoir* Port belonging to *do.*  
Nom. Horse Power as per Rule 358 Is Refrigerating Machinery fitted for cargo purposes *No* Is Electric Light fitted *yes.*  
Trade for which vessel is intended *Foreign*

**OIL ENGINES, &c.**—Type of Engines *Armstrong Sulzer 4 stroke cycle 2* Single or double acting *Single*  
Maximum pressure in cylinders *500 lbs* Diameter of cylinders *23 3/4"* Length of stroke *10 1/2"* No. of cylinders *4* No. of cranks *4*  
Span of bearings, adjacent to the Crank, measured from inner edge to inner edge *8 9/4"* Is there a bearing between each crank *yes.*  
Revolutions per minute *110* Flywheel dia. *7-1"* Weight *10 3/4 tons* Means of ignition *Compression* Kind of fuel used *Diesel oil*  
Crank Shaft, dia. of journals *as per Rule 14.55* Crank pin dia. *15.35"* Crank Webs *Mid. length breadth 29.57"* Thickness parallel to axis *26.5"*  
*as fitted 15.35"* Mid. length thickness *10.45"* Thickness around eye hole *17 1/2"*  
Flywheel Shaft, diameter *as per Rule 14.55* Intermediate Shafts, diameter *as per Rule 10.7* Thrust Shaft, diameter at collars *as per Rule 11 1/2"*  
*as fitted 15.35"* *as fitted 12.56"* *as fitted 15.35"*  
Tube Shaft, diameter *as per Rule 11 1/4"* Is the *none* shaft fitted with a continuous liner *yes*  
*as fitted 12.5"* *as fitted 12.5"*  
Bronze Liners, thickness in way of bushes *as per Rule 21/32"* Thickness between bushes *as per Rule 1/2"* Is the after end of the liner made watertight in the  
*as fitted 3/4"* *as fitted 23/32"* 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 *yes*  
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 *yes*  
If two liners are fitted, is the shaft lapped or protected between the liners *yes* Is an approved Oil Gland or other appliance fitted at the after  
end of the tube shaft *No* Length of Bearing in Stern Bush next to and supporting propeller *56"*  
Propeller, dia. *12-6"* Pitch *11-9"* No. of blades *4* Material *Bronze* whether Movable *yes* Total Developed Surface *60* sq. feet  
Method of reversing Engines *compressed air* Is a governor or other arrangement fitted to prevent racing of the engine when disengaged *In clutch* Means of lubrication  
*from tank* Thickness of cylinder liners *4.5 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 *funnel*  
Cooling Water Pump, No. *No* 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. *only* Diameter *150 mm* Stroke *210 mm* Can one be overhauled while the other is at work *yes*  
Pumps connected to the Main Bilge Line *No. and Size 7" x 7 1/2" two steam and 7" x 7" x 5"* How driven *Electrical* *Steam*  
Ballast Pumps, No. and size *One 7" x 7" x 5"* Lubricating Oil Pumps, including Spare Pump, No. and size *one 150 mm diam x 175 mm stroke*  
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 *Three 3", one 3" aft, two 2 1/2" oil bilge and one 3" in cofferdam.*  
In Holds, &c. *one 3" in No 1 and two 3 1/2" in No 2*  
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size *One 6" + one 5" diam.*  
Are all the Bilge Suction pipes in Holds and Tunnel Well 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 *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 pinking of the vessel *yes* Are the Blow Off Cocks fitted with a spigot and brass covering plate *yes.*  
What pipes pass through the bunkers *None* How are they protected *yes*  
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 *yes*  
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 *None* Is it fitted with a watertight door *yes* worked from *yes*  
If a wood vessel, what means are provided to prevent leakage of either fuel oil or of lubricating oil from saturating the woodwork *yes*  
Main Air Compressors, No. *One* No. of stages *3* Diameters *6 1/2" 5 1/2" 5 1/2"* Strokes *560 mm* Driven by *Main Engine*  
Auxiliary Air Compressors, No. *No* No. of stages *3* Diameters *2 1/2" 2 1/2" 2 1/2"* Stroke *6"* Driven by *Steam*  
Small Auxiliary Air Compressors, No. *None* No. of stages *✓* Diameters *✓* Stroke *✓* Driven by *✓*  
Scavenging Air Pumps, No. *One* Diameter *1300 mm* Stroke *760 mm* Driven by *Main Engine*  
Auxiliary Engines crank shafts, diameter *as per Rule 4 None* See also Repts 4461/47391

**AIR RECEIVERS:**—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 *yes* What means are provided for cleaning their inner surfaces *Steam jet*  
Is there a drain arrangement fitted at the lower part of each receiver *yes*  
High Pressure Air Receivers, No. *8* Cubic capacity of each *21.75 C. feet* Internal diameter *19"* thickness *7/8"*  
Seamless, lap welded or riveted longitudinal joint *Seamless* Material *1 1/2" steel* Range of tensile strength *27/32 ton* Working pressure by Rules *1000 lbs per sq. in.*  
Starting Air Receivers, No. *One* Total cubic capacity *33.5 C. feet* Internal diameter *30"* thickness *2 1/2"*  
Seamless, lap welded or riveted longitudinal joint *Riveted* Material *1 1/2" steel* Range of tensile strength *27/32 ton* Working pressure by Rules *180 lbs per sq. in.*  
Also one H.P. air bottle 10 C. feet, 600 lb H.P. for Diesel driven generator.



4<sup>B</sup> 82473

IS A DONKEY BOILER FITTED? *Yes, 2* If so, is a report now forwarded? *Yes (Glasgow)*  
 PLANS. Are approved plans forwarded herewith for Shafting? *No. 1* *Belmont* Receivers *do* Separate Tanks *do*  
 Donkey Boilers *Yes* General Pumping Arrangements *No. 1* Oil Fuel Burning Arrangements *No. 1*  
 SPARE GEAR 1 cylinder cover, 2 fuel and air valves, 2 fuel needle valves, 2 guides, 2 fuel pulverisers with sleeves, rings, cones, four nozzles, one complete set of rings, a complete set of spiral wheels, 4 top and 2 bottom end bolts and nuts, one set of coupling bolts for crank shaft and one set for intermediate shafts, a complete set of working parts for main fuel pump, a complete set of valves for circulating water pump and for lubricating oil pumps and for cooling water and bilge pumps, nests of valves for scavenging pump, a set of studs and nuts for one cylinder, one cylinder liner, a set of main bearing bushes, fuel cams, rollers & pins etc.

The foregoing is a correct description.

SIR W. G. ARMSTRONG, WHITWORTH & CO. LIMITED.

Manufacturer.

*T. M. / 1 acc'd*

1927 FEB. 8-10-11-16-17-21-25. MAR. 5-8-9-15-17-23-25-31. APR. 4-5-11-13-20-22-23-25-28. MAY. 2-4-11-17-18-24-26-31. JUNE 1-3-8-13-16-17-20-29. JULY 1-4-5-6-8-12-13-19-20-22-25-27-29-30. AUGUST 3-4-5-8-10-11-12-15-16-17-18-19-23-24-29-30-31. SEPT. 1-2-5-6-7-8-12-13-15-21-22-23-26-27-28-29. OCT. 3-4-5-6-7-11-13-17-18-19-21-24-26-27-28-31. NOV. 1-2-4-7-8-10-14-16-18-23-25-28. DEC. 1-2-6-7-8-14-16-25-27-28-31. 1928 JAN. 5-9-11-17-18-26-27-30. FEB. 3-6-10-26-27.

Dates of Examination of principal parts—Cylinders 1/11/27 Covers 1/11/27 Pistons 11/4/27 Rods 11/4/27 Connecting rods 11/4/27  
 Crank shaft 2/5/27 Flywheel shaft 24/5/27 Thrust shaft 24/5/27 Intermediate shafts 18/7/27 Tube shaft *None*  
 Screw shaft 12/1/27 Propeller 5/9/27 Stern tube 2/11/27 Engine seatings 1/11/27 Engines holding down bolts 11/1/28  
 Completion of fitting sea connections 1/11/27 Completion of pumping arrangements 22/2/28 Engines tried under working conditions 1/2/28  
 Crank shaft, Material *L m steel* Identification Mark *13/10/27* Flywheel shaft, Material *L m steel* Identification Mark *13/10/27*  
 Thrust shaft, Material *L m steel* Identification Mark *do* Intermediate shafts, Material *do* Identification Marks *do*  
 Tube shaft, Material *None* Identification Mark *✓* Screw shaft, Material *L m steel* Identification Mark *5394 D*  
 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 *✓* If so, have the requirements of the Rules been complied with *✓*  
 Is this machinery duplicate of a previous case *Yes* If so, state name of vessel *Belmontia. Dye rpt 8238*

General Remarks (State quality of workmanship, opinions as to class, &c.) *The machinery of this vessel has been constructed under special survey, the materials and workmanship are of good quality, it has been securely fitted on board and satisfactorily tested under full power.*  
*In my opinion, the machinery of this vessel is now eligible for second Oil Engines: 2 m c 2/28, 2 D. Brs, 150 lbs in the register book. The 2 Donkey Boilers are fitted for burning oil fuel.*

*Glasgow report & plans of 2 Donkey Boilers, forging & casting reports, report on cylinder liners, report on air compressor & auxiliary oil engines now forwarded.*

The amount of Entry Fee ... £ 5 : 0  
 Special ... £ 83 : 4  
 Donkey Boiler Fee ... £ 2 : 2  
 Travelling Expenses (if any) £  
 Committee's Minute TUES. 13 MAR 1928  
 Assigned + LMC 2.28  
 Oil Engines 2 D.B. 150 lbs

George Murdoch  
 Engineer Surveyor to Lloyd's Register of Shipping.