

REPORT ON OIL ENGINE MACHINERY.

No. 105889

11 FEB 1949

Received at London Office

Date of writing Report 17-1-49 19 49 When handed in at Local Office 17-1-49 19 49 Port of NEWCASTLE-ON-TYNE
 Date, First Survey 11-3-47 Last Survey 21-1-49 19
 Number of Visits 92
 Survey held at Wallsend
 Date of Book 17-1-49
 Name of vessel PALUDINA
 Type of vessel Single
 By whom built Swan, Hunter & Wigham Richardson Yard No. 1771 When built 1929-1930
 By whom made Wallsend Slipway & Eng'g Co. Ltd Engine No. 1007 When made 1949
 By whom made ditto Boiler No. 1007 When made 1949
 Owners Anglo Saxon Port belonging to LONDON
 Is Refrigerating Machinery fitted for cargo purposes No Is Electric Light fitted Yes
 Trade for which vessel is intended Open sea service. Carrying Petroleum in bulk.

ENGINES, &c. — Type of Engines 3 Cylr opposed piston type 2 or 4 stroke cycle 2 St. Single or double acting Single Acting
 Maximum pressure in cylinders 640 lb/sq in Diameter of cylinders 600 (23 1/8") Combined Length of stroke 2320 (91 5/8") No. of cylinders 3 No. of cranks 3
 Indicated Pressure 91.5 lb/sq in Ahead Firing Order in Cylinders 1.3.2 Span of bearings, adjacent to the crank, measured between each THREE-THROW Revolutions per minute 117
 Weight of flywheel 16,650 x 10⁶ lbs. in² Moment of inertia of flywheel 6,085 x 10⁶ in² Means of ignition Compression Kind of fuel used Heavy oil fuel
 Crank pin dia. 4.50 Crank webs SOLID Mid. length breadth 820 m.m. CENTREWEBS Thickness parallel to axis 255 m.m.
 Crank pin dia. 4.50 Crank webs SOLID Mid. length thickness 192 m.m. shrunk Thickness around eyehole 200 m.m.
 Thrust Shaft, diameter at collars as fitted 17 3/4" ON CRANK SHAFT. as fitted 17 3/4"
 Is the shaft fitted with a continuous liner Yes
 Thickness of liners, thickness in way of bushes as per Rule 27/32" Thickness between bushes as per Rule 23/32" 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 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 No
 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 tube shaft No
 Length of bearing in Stern Bush next to and supporting propeller 72"
 Propeller, dia. 15.175 Pitch 11.36 No. of blades 4 Material Bronze whether moveable No Total developed surface 84 sq. feet
 Moment of inertia of propeller 23 x 10⁶ lbs. in² Kind of damper, if fitted NIL
 Method of reversing Engines Compressed air by hand lever Is a governor or other arrangement fitted to prevent racing of the engine Yes Means of lubrication forced Thickness of cylinder liners 25 m.m. Are the cylinders fitted with safety valves Yes Are the exhaust pipes and silencers water cooled
 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 2 for Distilled water
 Cooling Water Pumps, No. 2 for Sea water (COOLERS) 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. ONE Diameter 85 m.m. Stroke 608 m.m. Can one be overhauled while the other is at work Yes
 Pumps connected to the Main Bilge Line { No. and size ONE BILGE P. 40 TONS/HR. & GEN. SERV. P. 100 TONS/HR. } MAIN ENG. BILGE & SANIT. 25 TONS/HR.
 How driven each by Steam by main engine LEVER DRIVEN
 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 Yes
 Lubricating Oil Pumps, No. and size NIL Power Driven Lubricating Oil Pumps, including spare pump, No. and size one by Main Eng - 25 tons/hr
 Are two independent means arranged for circulating water through the Oil Cooler Yes Suctions, connected to both main bilge pumps and auxiliary pumps, No. and size:—In machinery spaces one of 4" & one of 4 1/2" In pump room 1 of 4"
 Independent Power Pump Direct Suctions to the engine room bilges, No. and size 2 of 4 1/2" + 1 of 5" on CENTRAL CIRC WATER PUMP ON PORT SIDE FORWARD
 Are all the bilge suction pipes in holds and tunnel well fitted with strum-boxes Yes Are the bilge suction pipes 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, except on the 5" above which has a STRUM BOX IN BILGE.
 Are all Sea Connections fitted direct on the skin of the Ship Yes Are they fitted with valves or cocks VALVES & COCKS 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
 Do the pipes pass through the bunkers Yes How are they protected Yes
 Do the pipes pass through the deep tanks Yes 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 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 Yes
 Main Air Compressors, No. 2 No. of stages 3 diameters 8 5/8, 4 3/8, 2 3/8" stroke 6 1/2" driven by STEAM
 Auxiliary Air Compressors, No. NIL No. of stages 3 diameters 8 5/8, 4 3/8, 2 3/8" stroke 6 1/2" driven by STEAM
 Small Auxiliary Air Compressors, No. NIL No. of stages 3 diameters 8 5/8, 4 3/8, 2 3/8" stroke 6 1/2" driven by STEAM
 What provision is made for first charging the air receivers Steam driven Air Compressors
 Scavenging Air Pumps, No. One double acting diameter 1700 m.m. stroke 608 m.m. driven by Main Engine
 Auxiliary Engines crank shafts, diameter as per Rule No. 2 of 30 KW. One Steam & One Oil Eng. Starts Side in ENG. RM.
 Have the auxiliary engines been constructed under special survey Yes Is a report sent herewith Yes CONT'D OVER.

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.
 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. NIL. Cubic capacity of each. ✓ Internal diameter. ✓ thickness. ✓
 Seamless, welded or riveted longitudinal joint. ✓ Material. ✓ Range of tensile strength. ✓ Working pressure. ✓
 Starting Air Receivers, No. TWO. Total cubic capacity. 220 CUB. FT. Internal diameter. 4 1/2 3/8" thickness. 1 5/32"
 Seamless, welded or riveted longitudinal joint. RIVETED Material. M. STL. Range of tensile strength. 29% 33 TONS Working pressure. 61.2
 Actual. 600

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.

PLANS. Are approved plans forwarded herewith for shafting. Yes (If not, state date of approval) Receivers. Yes. Separate fuel tanks. Yes
 Donkey boiler. Yes General pumping arrangements. ✓ Pumping arrangements in machinery space. 2-5-47
 Oil fuel burning arrangements. Yes (Sent with LEMBULUS. ENG. 1000) ✓
 Have Torsional Vibration characteristics been approved. yes. Date of approval. 4-11-46
+ Secy. letter 5.4 April

SPARE GEAR.

Has the spare gear required by the Rules been supplied. YES
 State the principal additional spare gear supplied. 1 main Bearing, 25 Piston Rings, 2 Fuel Valves (complete),
2 sets of Fuel Pump pressure parts, valves, crossheads & levers, etc.; 12 each Rubber Pipes for Piston water
service & for Transverse Pin Lubrication; 1 each Roller chains for chain drives;
2 Pyrometers for Exhaust; 6 HD Bolts for Bedplate, one T5 (CL), etc. etc.

FOR THE WALLSEND SLIPWAY & ENGINEERING CO. LTD. The foregoing is a correct description, and the particulars of the installation as fitted, are as approved
 for TORSIONAL VIBRATION CHARACTERISTICS. Manufacturer.

Dates of Survey while building
 During progress of work in shops - - - - -
 During erection on board vessel - - - - -
 Total No. of visits. 92
 Dates of examination of principal parts—Cylinders 6-5-48 to 21-7-48. Pistons. Various Rods. 27-5-48 Connecting rods. 16-6-48
 Crank shaft. 28-6-48 Flywheel shaft. as Crank Sh. Thrust shaft. as Crank Sh. Intermediate shaft. 6-8-48 Tube shaft. ✓
 working 14-6-48 IN WORKS 14-6-48 IN WORKS 31-5-48
 Screw shaft. Spare 7-7-48 Propeller. AT SHIP 20-8-48 Stern tube. AT SHIP 21-7-48 Engine seatings. 14-9-48 Engine holding down bolts. 4-10-48
 Completion of fitting sea connections. 16-8-48 Completion of pumping arrangements. 14-1-49 Engines tried under working conditions. JAN. 1949
 Crank shaft, material. M. STL Identification mark. LLOYDS 5137 Flywheel shaft, material. M. STL Identification mark. as Crank
 Thrust shaft, material. ✓ Identification mark. WHP 3-5-48 Intermediate shaft, material. M. STL Identification marks. 16929 HA
 Tube shaft, material. ✓ Identification mark. ✓ Screw shaft, material. M. STL Identification mark. 16929 HA
 Identification marks on air receivers. LLOYDS TEST 800 LBS.
W.P. 600 LBS
2 STARTING AIR RECEIVERS
AW 9-7-48 AW
 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 for smothering, also Foam Extinguishers 3 of 10 Gallon & 5 of 2 Gal.
in ENG. RM. & IN BIR. RM. one 2 1/2" Hose on 4.5 Pump & one 2 1/2" Hose in B. Rm. to Duty. C.W.
 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. Yes If so, state name of vessel. LEMBULUS.
NWC Rpt No 105153.

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 working conditions with satisfactory results
and is eligible, in my opinion, for record + LMC 1.49, and the notations;—DB 180th
TS CL, Fitted for oil fuel 1.49, FP above 150°F.

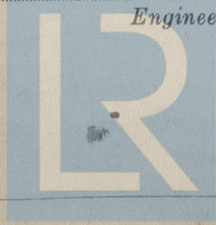
The torsional vibrations characteristics data was approved 4-11-46 & 5-4-48.
Torsiograph records were taken during sea trials, and a slight critical was noticed at 94.5
In view of this, a NOTICE PLATE, to avoid continuous running between 90 and 100 rpm has been fitted
at the CONTROL STATION. Copies of the Torsiograph Records will
be forwarded as soon as there are available.

The amount of Entry Fee ... £ ...
 Special ... £186
 7th Const. Bed. Subst. & Cols. ... 14 - 0/-
 Donkey Boiler Fee ... 47 - 16/-
 2 Starting Air Receivers ... 8 - 0/-
 Travelling Expenses (if any) ... ✓

Committee's Minute
 Assigned. + LMC 1.49 Oil Eng.
C.L. DB 180th.

A. Watt.

Engine Surveyor to Lloyd's Register of Shipping



Lloyd's Register
Foundation