

# REPORT ON OIL ENGINE MACHINERY.

No. 117946

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Date of writing Report 19 When handed in at Local Office 19 Port of Northwich

No. in Survey held at Northwich Date, First Survey July 31<sup>st</sup>/41 Last Survey May 28 1942  
 Reg. Book. Number of Visits 23

on the Single Screw vessel M.V. "R.N. AIR 2A" Tons <sup>Gross</sup> 259  
~~Triple~~  
~~Quadruple~~

Built at Northwich By whom built W. J. Yarwood & Sons (1938) Ltd Yard No. 668 When built 1942  
 Engines made at Keighley By whom made H. Widdop & Co Ltd Engine No 4064 When made 1942  
 Donkey Boilers made at  By whom made  Boiler No. — When made —  
 Brake Horse Power 300 @ 350 RPM Owners Fleet Air Arm Port belonging to —  
 Nom. Horse Power as per Rule 139 Is Refrigerating Machinery fitted for cargo purposes  Is Electric Light fitted   
140 Trade for which vessel is intended —

**OIL ENGINES, &c.**—Type of Engines See Manchester Report No 10848. 2 or 4 stroke cycle Single or double acting

Maximum pressure in cylinders \_\_\_\_\_ Diameter of cylinders \_\_\_\_\_ Length of stroke \_\_\_\_\_ No. of cylinders \_\_\_\_\_ No. of cranks \_\_\_\_\_  
 Mean Indicated Pressure \_\_\_\_\_

Span of bearings, adjacent to the Crank, measured from inner edge to inner edge \_\_\_\_\_ Is there a bearing between each crank \_\_\_\_\_

Revolutions per minute \_\_\_\_\_ Flywheel dia. \_\_\_\_\_ Weight \_\_\_\_\_ Means of ignition \_\_\_\_\_ Kind of fuel used \_\_\_\_\_

**Crank Shaft,**  Solid forged  Semi built dia. of journals as per Rule \_\_\_\_\_ as fitted \_\_\_\_\_ Crank pin dia. \_\_\_\_\_ Crank Webs Mid. length breadth \_\_\_\_\_ Mid. length thickness \_\_\_\_\_ Thickness parallel to axis \_\_\_\_\_ shrunk \_\_\_\_\_ Thickness around eyehole \_\_\_\_\_

**Flywheel Shaft,** diameter as per Rule \_\_\_\_\_ as fitted \_\_\_\_\_ **Intermediate Shafts,** diameter as per Rule Approved 3.932 \_\_\_\_\_ as fitted 4 1/4 \_\_\_\_\_ **Thrust Shaft,** diameter at collars as per Rule \_\_\_\_\_ as fitted \_\_\_\_\_

**Tube Shaft,** diameter as per Rule \_\_\_\_\_ as fitted \_\_\_\_\_ **Screw Shaft,** diameter as per Rule Approved 4.502 \_\_\_\_\_ as fitted 4 1/2 (4 3/4 at top) \_\_\_\_\_ Is the tube screw shaft fitted with a continuous liner  No

**Bronze Liners,** thickness in way of bushes as per Rule  \_\_\_\_\_ as fitted \_\_\_\_\_ Thickness between bushes as per Rule  \_\_\_\_\_ as fitted \_\_\_\_\_ Is the after end of the liner made watertight in the propeller boss  \_\_\_\_\_  
 If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner \_\_\_\_\_  
 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  \_\_\_\_\_  
 If two liners are fitted, is the shaft lapped or protected between the liners  \_\_\_\_\_ Is an approved Oil Gland or other appliance fitted at the after end of the tube shaft  \_\_\_\_\_ If so, state type Yarwood's Approved \_\_\_\_\_ Length of Bearing in Stern Bush next to and supporting propeller 18 \_\_\_\_\_

**Propeller,** dia. 4'-9" Pitch 3'-10" No. of blades 3 Material C.I whether Moveable  No Total Developed Surface 9 1/2 sq. feet

**Method of reversing Engines** Is a governor or other arrangement fitted to prevent racing of the engine when declutched \_\_\_\_\_ Means of lubrication \_\_\_\_\_  
 Thickness of cylinders See Man. Rpt \_\_\_\_\_ Are the cylinders fitted with safety valves \_\_\_\_\_ Are the exhaust pipes and silencers water cooled or lagged with non-conducting material See Man. Rpt \_\_\_\_\_ If the exhaust is led overboard near the waterline, what means are arranged to prevent water from being syphoned back to the engine  \_\_\_\_\_

**Cooling Water Pumps,** No. One M.E. and connections from M.E. bilge pump, & from Aux pump. 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 4 1/4" Stroke 3" Can one be overhauled while the other is at work  \_\_\_\_\_

**Pumps connected to the Main Bilge Line** No. and Size 1-4 1/4" x 3" \_\_\_\_\_ How driven M. Eng. \_\_\_\_\_ 1-Cent. 32 tons/hr. \_\_\_\_\_ 3 cyl Aux. Engine. \_\_\_\_\_

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 1 Cent. 32 tons/hr **Power Driven Lubricating Oil Pumps,** including Spare Pump, No. and size (3-1 3/4" x 3 also (Spare)) \_\_\_\_\_

Are two independent means arranged for circulating water through the Oil Cooler \_\_\_\_\_ **Suctions,** connected to both Main Bilge Pumps and Auxiliary Bilge Pumps, No. and size:—In Machinery Spaces (1-2 1/2") 2-2" Also suction to hand pump \_\_\_\_\_ In Pump Room  \_\_\_\_\_  
 In Holds, &c. 3-2" Branch or duct from M.E. Bilge pump \_\_\_\_\_

**Independent Power Pump Direct Suctions** to the Engine Room Bilges, No. and size 1-2 1/2" \_\_\_\_\_

Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes  yes  Are the Bilge Suctions in the Machinery Spaces ed 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 On Kingston Boxes  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 Below, but above light draft line

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

What pipes pass through the bunkers None  How are they protected \_\_\_\_\_

What pipes pass through the deep tanks Suction from fore peak tank  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  \_\_\_\_\_ 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. \_\_\_\_\_ No. of stages \_\_\_\_\_ Diameters \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_

**Auxiliary Air Compressors,** No. \_\_\_\_\_ No. of stages \_\_\_\_\_ Diameters \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_

**Small Auxiliary Air Compressors,** No. \_\_\_\_\_ No. of stages \_\_\_\_\_ Diameters \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_

What provision is made for first Charging the Air Receivers \_\_\_\_\_

**Scavenging Air Pumps,** No. \_\_\_\_\_ Diameter \_\_\_\_\_ Stroke \_\_\_\_\_ Driven by \_\_\_\_\_

**Auxiliary Engines** crank shafts, diameter as per Rule See Man. Reports No 10846, No. 10847. \_\_\_\_\_ as fitted \_\_\_\_\_ Position \_\_\_\_\_

Have the Auxiliary Engines been constructed under special survey  yes  Is a report sent herewith \_\_\_\_\_



**AIR RECEIVERS:**—Have they been made under survey  
 Is each receiver, which can be isolated, fitted with a safety valve as per Rule  
 Can the internal surfaces of the receivers be examined and cleaned  
 Injection Air Receivers, No. *5* Cubic capacity of each *Material* Internal diameter thickness  
 Seamless, lap welded or riveted longitudinal joint Range of tensile strength Working pressure by Rules Actual  
 Starting Air Receivers, No. *5* Total cubic capacity Internal diameter thickness  
 Seamless, lap welded or riveted longitudinal joint Range of tensile strength Working pressure by Rules Actual

**IS A DONKEY BOILER FITTED?** *No* ✓  
 Is the donkey boiler intended to be used for domestic purposes only  
**PLANS.** Are approved plans forwarded herewith for Shafting *17.12.40* Receivers *✓* Separate Fuel Tanks *✓*  
 (If not, state date of approval)  
 Donkey Boilers *✓* General Pumping Arrangements *27.5.41* Pumping Arrangements in Machinery Space *27.5.41*  
 Oil Fuel Burning Arrangements *✓*

**SPARE GEAR.**  
 Has the spare gear required by the Rules been supplied *Yes* ✓  
 State the principal additional spare gear supplied *as per list attached.*

**W. J. YARWOOD & SONS (1938) LTD.**  
 The foregoing is a correct description,  
*Managing Director* Manufacturer.

Dates of Survey while building  
 During progress of work in shops--  
 During erection on board vessel--  
 Total No. of visits *23*  
 July 31, Aug 27, Oct 15, Nov 12, 20, Dec 19, Jan 2, 15, 26, Feb 12, 24, Mar 7, 20, 26, Apr 2, 8, 15, 22, 29, May 6, 12, 13, 28  
 Dates of Examination of principal parts—Cylinders *✓* Covers *✓* Pistons *✓* Rods *✓* Connecting rods *✓*  
 Crank shaft *✓* Flywheel shaft *✓* Thrust shaft *✓* Intermediate shafts *27-8-41* Tube shaft *✓*  
 Screw shaft *15-10-41* Propeller *12-11-41* Stern tube *12-11-41* Engine seatings *19-12-41* Engines holding down bolts *15-4-42*  
 Completion of fitting sea connections *19-12-41* Completion of pumping arrangements Engines tried under working conditions  
 Crank shaft, Material *✓* Identification Mark *✓* Flywheel shaft, Material *✓* Identification Mark *✓*  
 Thrust shaft, Material *✓* Identification Mark *✓* Intermediate shafts, Material *Stal* Identification Marks *6067*  
 Tube shaft, Material *✓* Identification Mark *✓* Screw shaft, Material *Stal* Identification Mark *6064*

Identification Marks on Air Receivers  
 CTC  
 No. 54588  
 CTC  
 No. 54600  
 Ruston.  
 D. 808. Ho 81.167.

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 *No* ✓  
 If so, have the requirements of the Rules been complied with *No* ✓  
 If the notation for Ice Strengthening is desired, state whether the requirements in this respect have been complied with *No* ✓  
 Is this machinery duplicate of a previous case *Yes* ✓  
 If so, state name of vessel *"RN. Av 3A" (Yarwood's 669).*

**General Remarks** (State quality of workmanship, opinions as to class, &c.)  
*The Machinery of this vessel has been constructed under special survey and in accordance with the approved specification, and has been satisfactorily fitted on board.*  
*The Machinery has been examined under working conditions during a full power trial in the River Mersey with satisfactory results, and is eligible in my opinion to be classed, with a notation of + LMC 5.42.*  
 TS. OG

*See Lon. letter M. of 28.11.41*  
 The amount of Entry Fee ... £ : :  
 Special ... £ 33 : 16 : 6  
 Donkey Boiler Fee ... £ : :  
 Travelling Expenses (if any) £ 10 : 4 : 6  
 Committee's Minute **LIVERPOOL**  
 Assigned + LMC 5.42 O.G.

*Cur Reed*  
 Engineer Surveyor to Lloyd's Register of Shipping.  
**23 JUN 1942**  
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Certificate (if required) to be sent to  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)