

REPORT ON OIL ENGINE MACHINERY.

No. 97140
EB-6 1939

Received at London Office

NEWCASTLE-ON-TYNE

Date of writing Report *JSC* 19 When handed in at Local Office *1/2/39* Port of *NEWCASTLE-ON-TYNE*
No. in Survey held at *NEWCASTLE ON TYNE.* Date, First Survey *5/11/37* Last Survey *29/1/39*
Reg. Book. Number of Visits *184*

7760 on the *Single* Screw vessel **"DOMINION MONARCH."** Tons *Gross 27155*
Triple *Net 15813*
Quadruple

Built at *Wallsend on Tyne, Newcastle* By whom built *Swan, Hunter & Wigham Rich'd's Ld* Yard No. *1547* When built *1939-1*

Engines made at *Newcastle on Tyne* By whom made *S. H + W. R Ld* Engine No. *1566* When made *1938*
Sunderland. " " *Wm Doyford & Sons Ld* Engine No. *204* " " *1939*

Donkey Boilers made at *Renfrew* By whom made *Babcock & Wilcox* Boilers Nos. *73/4665-6-7-8* When made *1938*

Brake Horse Power *4 x 8000 = 32,000* Owners *Shaw, Savell & Albion Co Ld* Port belonging to *SOUTHAMPTON.*

Net Horse Power *as per Rule 5056* Is Refrigerating Machinery fitted for cargo purposes *Yes* Is Electric Light fitted *Yes*

Trade for which vessel is intended *Open Seas* *88%*

MAIN ENGINES, &c. Type of Engines *Opposed piston valves injection* 2 or 4 stroke cycle *2.* Single or double acting *Single*
Maximum pressure in cylinders *680 lbs* Diameter of cylinders *725 mm* Length of stroke *upper 950 mm* *lower 1300* No. of cylinders *four x 5* No. of cranks *four x 5 triple*

Mean Indicated Pressure *94.5 lbs* *centres of side cranks 1410 mm* Is there a bearing between each crank *between each three-throws*
Span of bearings, adjacent to the Crank, measured from inner edge to inner edge *1080 mm*

Revolutions per minute *133* Flywheel dia. *AFT 2355 mm* Weight *23 cwt* Means of ignition *Compression* Kind of fuel used *Heavy oil.*
as approved 517. Side pins & journals *Side Cranks* *Temperature* *centre cranks 315 mm*

Crank Shaft, dia. of journals *as fitted 560 mm* Crank pin dia. *560 mm* Crank Webs *Mid. length breadth 820 mm* Thickness parallel to axis *315 mm*
part Semi built *as fitted 560 mm* *Mid. length thickness 315 mm* Thickness around eye-hole *242.5 mm*
part all built. *as per Rule 517.* Intermediate Shafts, diameter *as fitted 15.91"* Thrust Shaft, diameter at collars *as per Rule 517 mm*
as fitted 560.

Tube Shaft, diameter *as per Rule* Each Screw Shaft, diameter *as per Rule 17.29"* Is the shaft fitted with a continuous liner *Yes.*
as fitted *as fitted 18 5/8"* *each tube*

Bronze Liners, thickness in way of bushes *as per Rule 27/32"* Thickness between bushes *as per rule 20/32"* Is the after end of the liner made watertight in the
as fitted aft 29/32" fore 7/8" *as fitted 27/32"* *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 *Lack 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 *tight fit.*
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* If so, state type *16'-0" OUTER* Length of Bearing in Stern Bush next to and supporting propeller *7'-9"*

Propeller, dia. *16'-6" INNER* Pitch *17'-0" INNER* No. of blades *4.* Material *Mang. Brnz* whether Moveable *Solid* Total Developed Surface *110. sq. feet*

Method of reversing Engines *Compressed air* Is a governor or other arrangement fitted to prevent racing of the engine *Yes* Means of lubrication
by hand lever. *Hand & forced* Thickness of cylinder liners *25 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 *Yes*

Cooling Water Pumps, No. *3 for jackets & pistons* Is the sea suction provided with an efficient strainer which can be cleared within the vessel *Distilled water used*
3 for guides & 3 for S.W. Line in Coolers & Condensers *all on Main Eng.* *F.W. on Auxy. Engines*

Bilge Pumps worked from the Main Engines, No. *None* Diameter *Stroke* Can one be overhauled while the other is at work *Yes*
Pumps connected to the Main Bilge Line *No. and Size Ball P. 225 tons/hour; Emerg Bilge P. 190 tons; 2 Bilge Ps. 125 tons; Gen S.P. 100 tons.*
How driven *all Elec. motor 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*

Ballast Pumps, No. and size *One of 225 tons* Power Driven Lubricating Oil Pumps, including Spare Pump, No. and size *3 of 170 tons/hour*
Two of 125 tonal Bilge. 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 *In Main E.R. 4 of 4"; In Auxy. E.R. 2 of 3 1/2"; Tunnel Well 1 of 3 1/2"* *In Pump Room*

In Holds, &c. *No 1, 2 of 4"; No 2, 2 of 3 1/2"; No 3, 2 of 3 1/2"; No 4, 2 of 3 1/2"; No 5, 1 of 3 1/2" + 2 of 3"; No 6, 1 of 3 1/2"*
Independent Power Pump Direct Suctions to the Engine Room Bilges, No. and size *2 of 7" in Main E.R. and 2 of 6" in Auxy. E.R.*

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 *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*
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 *Yes* Is it fitted with a watertight door *Yes* worked from *"E" deck by hand*
& electrically from Bridge.

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. *None* No. of stages *3* Diameters *Stroke* Driven by *Yes*

Auxiliary Air Compressors, No. *2 (Gls. Cent. C. 36522)* No. of stages *3* Diameters *14 1/2 - 3 1/2 + 3 1/2"* Stroke *8"* Driven by *Elec. motors*
1 (" " C. 36102) No. of stages *2* Diameters *6 - 1 1/4" + 2 1/4"* Stroke *4 1/2"* Driven by *Steam Eng.*

Small Auxiliary Air Compressors, No. *1* No. of stages *2* Diameters *Stroke* Driven by *M. Eng. Crankshaft*
What provision is made for charging the Air Receivers:— *The above Small Steam driven Air Compressor.*
Scavenging Air Pumps, No. *one on each engine* Diameter *1780 mm* Stroke *1480 mm* Driven by *Yes*

Auxiliary Engines crank shafts, diameter *as per Rule* No. *Five 600 Kw. Oil Eng. Dyno Lts; One 100 Kw. Emergency*
as fitted Position *in Auxy. Eng. Room.* on Sports Deck *Yes*
Have the Auxy. Engines been constructed under special Survey. Yes. Are reports sent here with *Yes.*

Have they been made under Survey. Yes. State hrs of Report or Cert. *Nos 1 & 2 tested Nos 3 & 4 tested 3*

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 and cleaned *Yes* Is a drain fitted at the lowest part of each receiver *Yes*

High Pressure 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. *4* Total cubic capacity *1400 cub ft* Internal diameter *69"* thickness *1 1/32"*

~~Seamless, lap welded or riveted longitudinal joint~~ *T.R. Riveted longitudinal joint* Material *Steel* Range of tensile strength *30-34 tons* Working pressure *by Rules Actual 600 lbs*

ARE DONKEY BOILERS FITTED? *Yes* (2 waste heat blrs in E.R. casing on 2 St. Boilers. 2 oil fired blrs in Auxy E.R. If so, is a report now forwarded? *Yes. Glo Rpts 60311 & 60350.*

Is the donkey boiler intended to be used for domestic purposes only *Yes & for heating coils in O.F. Tanks*

PLANS. Are approved plans forwarded herewith for Shafting *Crank sh 29/4/37 & 13/11/37 19/6/37, 21/7/37* Receivers *11/11/37* Separate Fuel Tanks *25/11/37*

Donkey Boilers *See Glo rpts* General Pumping Arrangements *11/3/38* Pumping Arrangements in Machinery Space *30/11/37*

Oil Fuel Burning Arrangements *1/4/38.*

SPARE GEAR.

Has the spare gear required by the Rules been supplied *Yes*

State the principal additional spare gear supplied *3 cyls liners, 2 upper & 2 lower pistons complete with piston rods & skirts, 5 piston heads, 3 fuel valves, 4 non return starting valves, 4 cyls relief valves, 2 lower half top end bearings, 1 bottom end bearing for centre conn. rod, 6 upper half & 2 lower half top end bearings, 3 bottom end bearings for side conn. rods, 2 main bearings, 1 top end bearing & 1 bottom end bearing for Scavenger pump connecting rod, 2 roller chains for Crank shaft drive*

The foregoing is a correct description,
SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

G. J. Dwyer Manufacturer.

DATES

During progress of work in shops—*1937*
 During erection on board vessel—*1938*
 Total No. of visits *184*

1937
 Dec. 2, 1937
 Jan. 1, 2, 3, 7, 8, 10, 14, 15, 16, 28, 30, July 1, 5, 6, 7, 8, 11, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 25, 26, 27, 28, 29, Aug 4, 5, 11, 15, 16, 18, 19, 22, 24, 25, 26, 29, 30, 31, Sep. 1, 2, 5, 6, 7, 8, 9, 12, 13, 14, 16, 19, 20, 21, 22, 23, 26, 27, 28, 29, 30, Oct. 2, 3, 4, 5, 6, 11, 12, 13, 14, 17, 18, 21, 24, 25, 26, 27, 28, 31, Nov. 1, 3, 4, 7, 8, 10, 11, 14, 15, 17, 21, 22, 23, 24, 25, 28, Dec. 1, 5, 6, 7, 9, 12, 13, 16, 21, 22, 29, 1939 Jan. 3, 4, 6, 9, 10, 12, 13, 16, 18, 19, 20, 21, 27, 28, 29.

DATES OF EXAMINATION OF PRINCIPAL PARTS—Cylinders *7/9/38* Pistons *7/9/38* Connecting rods *7/9/38*
 Crank shaft *20/9/38* Flywheel shaft *as crank sh* Thrust shaft *as crank sh* Intermediate shafts *13/5/38 to 19/7/38* Tube shaft *10/10/38*
 Screw shafts *8/7/38* Propellers *19/7/38* Stern tubes *8th, 11th, 12th & 13th July 1938* Engine seatings *19/7/38* Engines holding down bolts *15/11/38*
 Completion of fitting sea connections *25/7/38* Completion of pumping arrangements *29/12/38* Engines tried under working conditions *19/1/38 & 29/1/38*

CRANK SHAFT, MATERIAL *7 Steel* Identification Mark *SO4463 GOC Eng 1566. JLCD.* **FLYWHEEL SHAFT, MATERIAL** *7 Steel* Identification Mark *as crank sh*

THRUST SHAFT, MATERIAL *7 Steel* Identification Mark *do.* **INTERMEDIATE SHAFTS, MATERIAL** *7 Steel* Identification Marks *See attached*

TUBE SHAFT, MATERIAL *✓* Identification Mark *✓* **SCREW SHAFTS, MATERIAL** *7 Steel* Identification Mark *Post out 1298 HK*

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 *✓*

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 *No* If so, state name of vessel *✓*

General Remarks (State quality of workmanship, opinions as to class, &c. *The Machinery has been constructed & installed under special survey in accordance with the Rules & approved plans, and the materials & workmanship are good. During installing, the Thrust Pedestal (cast iron) of the Port Dimer main Engine was fractured on its starboard corner and was repaired by fitting a M. Steel plate inside and a G.M plate outside around the corner, all securely bolted together as a permanent repair. This was agreed to by the owners' representatives. The five 600 KW Auxiliary Oil Engine Dynamo Sets are each fitted on "CORESIL" cork pads (see Secy's letter of 3rd Dec 1938).*

The machinery was satisfactorily tested at sea under working conditions, and the vessel is eligible in my opinion for records + LMC. 1.39, T.S. CL. 4 DB. 100lb wt

Certificate (if required) to be sent to Newcastle-on-Tyne

The amount of Entry Fee .. £ 3 : 0 :
 Special .. £ 175 : 17-6
 Elec. welded constrn Donkey Boiler Fee .. £ 18 : 18
 4 Starting Air Receiv .. £ 12 : 12
 Travelling Expenses (if any) .. £ : :
 When applied for, *4 FEB 1939*
 When received, *11. 2 19 39*

A Watt
 Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute *TUE. 14 FEB 1939*
 Assigned *+ Lmb. 1.39 Oil Inf. 4 DB-100lb*

