

## Rpt. 4b

1 MAY 1962

Date of writing report 27th.4.62. Received London \_\_\_\_\_ Port Southampton No. 27563  
 Survey held at Southampton No. of visits 35 In shops 14.4.61. 23.2.62.  
 On vessel 15 First date 20.10.61. Last date 1.5.62.

30/3/62 see 500 26/5/62 note

## FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. \_\_\_\_\_ Name "OSBORNE CASTLE" Gross tons 735

Owners Soliton I.O.W. & South of England R.M.S. Pkt. Co. Ltd. Managers \_\_\_\_\_ Port of Registry \_\_\_\_\_ Year Month  
 Hull built at Southampton By John I. Thornycroft & Co. Ltd. Card No. 4196 When 1962

Main Engines made at Manchester By Crossley Bros. Ltd. Eng. No. 148767-8 When 1961

Gearing made at \_\_\_\_\_ By \_\_\_\_\_

Donkey boilers made at \_\_\_\_\_ By \_\_\_\_\_ Blr. Nos. \_\_\_\_\_ When \_\_\_\_\_

Machinery installed at Southampton By John I. Thornycroft & Co. Ltd. When 1962

Particulars of restricted service of ship, if limited for classification For service between Southampton & Cowes

Particulars of vegetable or similar cargo oil notation, if required \_\_\_\_\_

Is ship to be classed for navigation in ice? No Is ship intended to carry petroleum in bulk? No

Is refrigerating machinery fitted? No If so, is it for cargo purposes? \_\_\_\_\_ Type of refrigerant \_\_\_\_\_

Is the refrigerating machinery compartment isolated from the propelling machinery space? \_\_\_\_\_ Is the refrigerated cargo installation intended to be classed? \_\_\_\_\_

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other signs of doubtful meaning are not to be used. Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that report need not be repeated below, but the port and report number should be stated.

No. of main engines 2 No. of propellers 2 Brief description of propulsion system Direct Reversing Oil Engines.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. HRN8/45. See Manchester Report No. 484 for details.

No. of cylinders per engine 8 Dia. of cylinders 10 1/2" stroke(s) 13 1/2" 2 or 4 stroke cycle 2 Single or double acting Single

Maximum approved BHP per engine 900 at 450 RPM of engine and 450 RPM of propeller.

Corresponding MIP \_\_\_\_\_ (For DA engines give MIP top & bottom) Maximum cylinder pressure \_\_\_\_\_ Machinery numeral \_\_\_\_\_

Are the cylinders arranged in Vee or other special formation? \_\_\_\_\_ If so, number of crankshafts per engine \_\_\_\_\_

TWO STROKE ENGINES. Is the engine of opposed piston type? \_\_\_\_\_ If so, how are upper pistons connected to crankshaft? \_\_\_\_\_

Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? \_\_\_\_\_ No. and type of mechanically driven scavenge pumps or blowers per

engine and how driven \_\_\_\_\_

No. of exhaust gas driven scavenge blowers per engine \_\_\_\_\_ Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action? \_\_\_\_\_

If a stand-by or emergency pump or blower is fitted, state how driven \_\_\_\_\_ No. of scavenge air coolers \_\_\_\_\_ Scavenge air pressure at full

power \_\_\_\_\_ Are scavenge manifold explosion relief valves fitted? \_\_\_\_\_

FOUR STROKE ENGINES. Is the engine supercharged? \_\_\_\_\_ Are the undersides of the pistons arranged as supercharge pumps? \_\_\_\_\_ No. of exhaust gas driven blowers per

engine \_\_\_\_\_ No. of supercharge air coolers per engine \_\_\_\_\_ Supercharge air pressure \_\_\_\_\_ Can engine operate without supercharger? \_\_\_\_\_

TWO & FOUR STROKE ENGINES--GENERAL. No. of valves per cylinder: Fuel \_\_\_\_\_ Inlet \_\_\_\_\_ Exhaust \_\_\_\_\_ Starting \_\_\_\_\_ Safety \_\_\_\_\_

Material of cylinder covers \_\_\_\_\_ Material of piston crowns \_\_\_\_\_ Is the engine equipped to operate on heavy fuel oil? \_\_\_\_\_

Cooling medium for: Cylinders \_\_\_\_\_ Pistons \_\_\_\_\_ Fuel valves \_\_\_\_\_ Overall diameter of piston rod for double acting engines \_\_\_\_\_

Is the rod fitted with a sleeve? \_\_\_\_\_ Is welded construction employed for: Bedplate? \_\_\_\_\_ Frames? \_\_\_\_\_ Entablature? \_\_\_\_\_ Is the crankcase separated from the

underside of pistons? \_\_\_\_\_ Is the engine of crosshead or trunk piston type? \_\_\_\_\_ Total internal volume of crankcase \_\_\_\_\_ No. and total area of explosion relief

devices \_\_\_\_\_ Are flame guards or traps fitted to relief devices? \_\_\_\_\_ Is the crankcase readily accessible? \_\_\_\_\_ If not, must the engine be removed for

overhaul of bearings, etc? \_\_\_\_\_ Is the engine secured directly to the tank top or to a built-up seating? Built up seating How is the engine started? Compressed Air

Can the engine be directly reversed? Yes If not, how is reversing obtained? \_\_\_\_\_

Has the engine been tested working in the shop? \_\_\_\_\_ How long at full power? \_\_\_\_\_

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 17.4.61. State barred speed range(s), if imposed

for working propeller \_\_\_\_\_ For spare propeller \_\_\_\_\_ Is a governor fitted? \_\_\_\_\_ Is a torsional vibration damper or detuner fitted to the shafting? \_\_\_\_\_

Where positioned? \_\_\_\_\_ Type \_\_\_\_\_ No. of main bearings \_\_\_\_\_ Are main bearings of ball or roller

type? \_\_\_\_\_ Distance between inner edges of bearings in way of crank(s) \_\_\_\_\_ Distance between centre lines of side cranks or eccentrics of opposed piston engines \_\_\_\_\_

Crankshaft type: Built, semi-built, solid. (State which) \_\_\_\_\_

Diameter of journals \_\_\_\_\_ Diameter of crankpins \_\_\_\_\_ Centre \_\_\_\_\_ Breadth of webs at mid-throw \_\_\_\_\_ Axial thickness of webs \_\_\_\_\_

If shrunk, radial thickness around eyeholes \_\_\_\_\_ Are dowel pins fitted? \_\_\_\_\_ Crankshaft material \_\_\_\_\_ Journals \_\_\_\_\_ Minimum \_\_\_\_\_

Diameter of flywheel \_\_\_\_\_ Weight \_\_\_\_\_ Are balance weights fitted? \_\_\_\_\_ Total weight \_\_\_\_\_ Radius of gyration \_\_\_\_\_

Diameter of flywheel shaft \_\_\_\_\_ Material \_\_\_\_\_ Minimum approved tensile strength \_\_\_\_\_

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) \_\_\_\_\_

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MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines ..... Open or closed cycle ..... BHP per set ..... at ..... RPM of output shaft .....  
How is drive transmitted to propeller shaft? .....  
ARRANGEMENT OF TURBINES. HP drives ..... at ..... RPM ..... HP gas inlet temperature ..... pressure .....  
(A small diagram should be attached showing gas cycle.)  
IP drives ..... at ..... RPM ..... IP gas inlet temperature ..... pressure .....  
LP drives ..... at ..... RPM ..... LP gas inlet temperature ..... pressure .....  
No. of air compressors per set ..... Centrifugal or axial flow type? ..... Material of turbine blades ..... Material of compressor blades .....  
No. of air coolers per set ..... No. of heat exchangers per set ..... How are turbines started? .....  
How is reversing effected? ..... Are the turbines operated in conjunction with free piston gas generators? .....  
Total No. of free piston gas generators ..... Diameter of working pistons ..... Diameter of compressor pistons ..... No. of double strokes per minute at full power ..... Gas delivery pressure ..... Gas delivery temperature ..... Have the turbines and attached equipment been tested working in the shop? ..... How long at full power? .....

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators ..... KW per generator ..... at ..... RPM ..... AC or DC? ..... Position .....  
No. of propulsion motors ..... SHP per motor ..... at ..... RPM ..... Position .....  
How is power obtained for excitation of generators? ..... Motors? .....

REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type? ..... If single, position of gear thrust bearing ..... Is gearing of epicyclic type? .....  
PCD of pinions: First reduction ..... Second reduction ..... PCD of wheels: First reduction ..... Main .....  
Material of pinions ..... Tensile strength ..... Material of wheel rims ..... Tensile strength .....  
Are gear teeth surface hardened? ..... How are teeth finished? ..... Diameter of pinion journals ..... Wheel shaft journals .....  
Are the wheels of welded construction? ..... Is gearcase of welded construction? ..... Has the wheel/gearcase been heat treated on completion of welding? ..... Where is the propeller thrust bearing located? ..... Are gear bearings of ball or roller type? .....

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give brief description and, for clutches, state how operated

Can the main engine be used for purposes other than propulsion when declutched? ..... If so, what? .....

STRAIGHT SHAFTING. Diameter of thrustshaft  $5\frac{3}{4}$ " ..... Material Forged Steel ..... Minimum approved tensile strength 28 tons per sq. in. ....  
Shaft separate or integral with crank or wheel shaft? Separate ..... Diameter of intermediate shaft  $5\frac{1}{2}$ " ..... Material Forged Steel .....  
Minimum approved tensile strength 28 Tons/sq. in. .... Diameter of screwshaft cone at large end  $6\frac{1}{2}$ " reduced to 5.75 at coupling. ....  
Diameter of tube shaft. (If these are separate shafts) ..... Is tube shaft fitted with a continuous liner in way of stern tube? ..... Thickness of screw/tube shaft liner at bearings .....  
Material of screw/tube shaft Forged steel ..... Minimum approved tensile strength 28 tons sq. in. ....  
Is an approved oil gland fitted? Yes ..... If so, state type U.S. Metallic Packing Co. Length of bearing next to and supporting propeller  $25\frac{1}{2}$ " .....  
Material of bearing G.M. White metal lined. .... In multiple screw vessels is the liner between stern tube and A bracket continuous? ..... If not, is the exposed length of shafting between liners readily visible in dry dock? .....

PROPELLER. Diameter of propeller  $5\frac{1}{2}$ " ..... Pitch  $4\frac{1}{2}$ " ..... Built up or solid Solid ..... Total developed surface 15.6 sq. ft. ....  
No. of blades 5 ..... Blade thickness at top of root fillet  $2\frac{5}{8}$ " ..... Blade material Mang Bronze ..... Moment of inertia of dry propeller 273500 lbs. in. ....  
If propeller is of special design, state type ..... Is propeller of reversible pitch type? No ..... If so, is it of approved design? .....  
State method of control ..... Material of spare propeller ..... Moment of inertia .....

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None ..... Can they be declutched? .....

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2-28 c.ft. F.A.D. Port side E.R. ....  
One Diesel driven and one elect. driven. Southampton Cert. Nos. D.18652 and D.18621 .....  
No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 6 - Receivers 15 cu. ft. each. ....  
on Port side Eng. Room. Nottingham Cert. Nos. C.33538; 33540/1 & 2; 33570; 33573. ....  
How are receivers first charged? By hand started Diesel Comp. Maximum working pressure of starting air system 350 lbs/sq. in. ....  
accordance with the Rules? Yes ..... Has the starting of the main engines been tested and found satisfactory? Yes .....

COOLERS. No. of main engine fresh water coolers 2 ..... No. of main engine lubricating oil coolers 2 .....

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 2 - Service tanks in Eng. Room Casing. ....

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) L.O. and fuel pumps only. ....

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X												DELIVERY				
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Ballast Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	Over Board		
2 - M.E. Cooling Water Pumps P & S.					X						X						
Elect. driven 180 G.P.M.																	
S.W. Circ. Pump. Port aft.						X				X							
Elect. driven 180 G.P.M.																	
Bilge & GS. Pump. Std. Ford.	X	X	X			X			X	X		X				X	
Bilge & GS. Pump. Std. Aft.	X	X	X			X			X	X		X				X	
Elect. driven 60 Tons/hour Fire Service Pump. Starbd.						X						X					
Elec. driven 25 Tons/hour.																	
Fuel Transfer Pump. Stbd.				X								X					
Elect. driven																	

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room Forward Compt. One - 2" centre suction.  
Nos. 2 & 3 Compts. Forwd. 2" P & S wing suctions (Total 4). Aft Compt. 2" Port centre & stbd. (Total 3).  
No. and size connected to main bilge line in main engine room 2 port & 2 starbd. - 2 1/2" wing suctions. In tunnel 2 - 2 1/2"  
In aux. engine room ..... Size and position of direct bilge suctions in machinery spaces 3" Port to forward pump.  
3" Centre Suction for direct Hand Pump connection. Size and position of emergency bilge suctions in machinery spaces 4" centre to Aft Pump.  
Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? No Do the piping arrangements comply with the Rules including special requirements for ships carrying petroleum in bulk, cargo oil as classed for navigation in ice? (Strike out words not applicable). Yes

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Stbd. Eng. Room. Ford. J.K. 6. Oil Eng.	Lister Blackstone	Bristol. SC. 10, 198	X	50 K.W. Generator.
" " " Aft.	- do -	- do -	" SC. 10, 199	- do -
Port Eng. Room.	- do -	- do -	" SC. 10, 197	- do -
" " " Ford. 2VDZ Oil Engine	Ruston & Prosser	Nottingham. C. 34988	X	Air Compressor.

Is electric current used for essential services at sea? Yes ..... If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea. One - 50 K.W. Generator. .... Is an electric generator driven by Main Engine? No .....

STEAM INSTALLATION. No. of donkey boilers burning oil fuel ..... W.P. .... Type .....  
Position .....  
Is a superheater fitted? ..... Are these boilers also heated by exhaust gas? ..... No. of donkey boilers heated by exhaust gas only? ..... W.P. ....  
Type ..... Position ..... Can the exhaust heated boilers deliver steam directly to the steam range or do they operate only as economisers in conjunction with oil fired boilers? ..... Port and No. of report on donkey boilers .....  
Is steam essential for operation of the ship at sea? ..... Are any steam pipes over 3 ins. bore? ..... If so, what is their material? .....  
For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? ..... No. of oil burning pressure units ..... No. of steam condensers ..... No. of Evaporators .....

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) "Hyland" 2 ram elect. hydraulic unit. No. 1429. ....  
Newcastle Cert. No. C.73345. ....

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes ..... Brief description of arrangements Adequate hose connections on Fire main. ....  
One-30 gall. Foam Ext. 2-Portable exts. & one-Dry Chemical Ext. in Engine Room. ....  
Has the spare gear required by the Rules been supplied? Yes ..... Has all the machinery been tried under full working conditions and found satisfactory? Yes ..... Date and duration of full power sea trials of main engines 20.2.62. - 4 hours. .... Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) .....

The foregoing description of the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable). For JOHN I. THORNYCROFT & CO. LIMITED

G. T. Adams Lloyd's Register  
ENGINEER MANAGER  
SOUTHAMPTON

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# GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and give recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

The machinery of this vessel has been manufactured and installed under Special Survey in accordance with the Rules, approved plans and the Secretary's letters. The materials used and quality of workmanship are of good standard. The machinery has been examined under working conditions on full power trials at sea and proved satisfactory. The machinery of this vessel is eligible, in my opinion, for Classification with the notation of + LMC. 3,62 and TS.0G.

*A. Pemberton*

Engine Surveyor to Lloyd's Register of Shipping.

## PARTICULARS OF IDENTIFICATION MARKS ((Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS

CRANKSHAFT OR ROTORSHAFT

FLYWHEEL SHAFT

THRUSTSHAFT 5883. and 6733. LVH. 10.10.59. Mch.

GEARING

INTERMEDIATE SHAFTS F.1664; 1733; 1772; 1890; 1891; 1906; SHR. BHM.

SCREW AND TUBE SHAFTS F.1537. A & B. 8.6.61. ADC. BHM.

PROPELLERS E.6292 R.H. E.6293 L.H. LLOYD'S No. 965. SOU. Cert. Nos. D.18678/9.

OTHER IMPORTANT ITEMS Tailshaft Couplings: F.1699. BHM.

Is the installation a duplicate of a previous case? Yes If so, state name of vessel "Carisbrooke Castle".

Date of approval of plans for crankshaft 9.1.61. Straight shafting 17.4.61. Gearing Clutch

Separate oil fuel tanks 25.4.61. Pumping arrangements 6.6.61. & 20.2.62. Oil fuel arrangements 6.6.61.

Cargo oil pumping arrangements Air receivers Donkey boilers

Dates of examination of principal parts:—

Fitting of stern tube 20.10.61. Fitting of propeller 24.10.61. Completion of sea connections 20.10.61. Alignment of crankshaft in main bearings

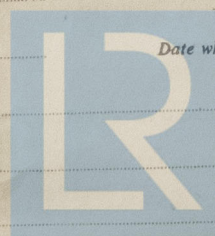
Engine chocks & bolts 19.12.61. Alignment of gearing 19.12.61. Alignment of straight shafting 19.12.61. Testing of pumping arrangements 31.1.62

Oil fuel lines 29.1.62. Donkey boiler supports Steering machinery 20.2.62. Windlass 20.2.62.

Date of Committee FRIDAY - 8 JUN 1962 Special Survey Fee £96..0..0.

Decision + LMC ES } 3.62 TS(09) Shop testing. £15..0..0.

Expenses £5.12..6.



Date when A/c rendered

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