

Rpt. 4b

Date of writing report 27-8-59 Received London _____ Port IPSWICH No. 140777
Survey held at WIVENHOE. No. of visits _____ In shops _____ First date 27-2-59 Last date 26-8-59
On vessel 10

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. _____ Name "BLACKBIRD C." Gross tons 141.0.
Owners J. W. Cook & Co L^{td} Managers _____ Port of Registry HULL.
Hull built at WIVENHOE. ESSEX. By JAMES. W. COOK & CO (WIVENHOE) L^{td} Yard No. 1185. Year Month
Main Engines made at STAMFORD. Lincs. By LISTER BLACKSTONE & CO L^{td} Eng. No. M. 86069 When 1959-8
Gearing made at SLOUGH, Bucks. By MODERN WHEEL DRIVE L^{td} When 1959-1
Donkey boilers made at LONDON. By J. STONE (DEPTFORD) L^{td} Blr. No. 20328 When 1959-1
Machinery installed at WIVENHOE. By JAMES. W. COOK & CO (WIVENHOE) L^{td} When _____
Particulars of restricted service of ship, if limited for classification FOR SERVICE IN HUMBER RIVER AND ESTUARY.
Particulars of vegetable or similar cargo oil notation, if required CARRYING OIL IN BULK OF FLASH POINT ABOVE 150°F.
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? No Type of refrigerant NONE
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 ONE No. of propellers ONE Brief description of propulsion system OIL ENGINE WITH REVERSE REDUCTION GEARING TO SINGLE SCREW.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. LISTER BLACKSTONE EVMGR 4 VERTICAL DIESEL.

No. of cylinders per engine 4 Dia. of cylinders 8 3/4" stroke(s) 11 1/2" 2 or 4 stroke cycle 4 Single or double acting SINGLE

Maximum approved BHP per engine 180 at 600 RPM of engine and 300 RPM of propeller.

Corresponding MIP 106 lbs/sq" (For DA engines give MIP top & bottom) Maximum cylinder pressure 800 lbs/sq" Machinery numeral 36

Are the cylinders arranged in Vee or other special formation? No 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? No Are the undersides of the pistons arranged as supercharge pumps? No No. of exhaust gas driven blowers per engine NONE

No. of supercharge air coolers per engine NONE Supercharge air pressure - Can engine operate without supercharger? -

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel ONE Inlet ONE Exhaust ONE Starting SERIES Safety ONE

Material of cylinder covers CAST IRON. Material of piston crowns ALUMINIUM ALLOY. Is the engine equipped to operate on heavy fuel oil? No

Cooling medium for:—Cylinders FRESH WATER Pistons NONE Fuel valves NONE Overall diameter of piston rod for double acting engines -

Is the rod fitted with a sleeve? No Is welded construction employed for: Bedplate? No Frames? No Entablature? No Is the crankcase separated from the underside of pistons? No

Is the engine of crosshead or trunk piston type? TRUNK Total internal volume of crankcase 30 Cu. Ft. No. and total area of explosion relief devices 2 - 22 sq"

Are flame guards or traps fitted to relief devices? YES Is the crankcase readily accessible? YES 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 SEAT. How is the engine started? COMPRESSED AIR.

Can the engine be directly reversed? No If not, how is reversing obtained? REVERSE REDUCTION GEARING.

Has the engine been tested working in the shop? YES How long at full power? 4 HOURS.

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 23-12-58 State barred speed range(s), if imposed for working propeller NONE For spare propeller - Is a governor fitted? YES Is a torsional vibration damper or detuner fitted to the shafting? No

Where positioned? RUBBER BONDED FLEXIBLE COUPLING ONLY. No. of main bearings 6 Are main bearings of ball or roller type? No

Distance between inner edges of bearings in way of crank(s) 10 1/16" Distance between centre lines of side cranks or eccentrics of opposed piston engines -

Crankshaft type: Built, semi-built, solid. (State which) SOLID FORGED.

Diameter of journals 6 3/4" Diameter of crankpins 6 1/8" Breadth of webs at mid-throw 7 3/4" Axial thickness of webs 2 25/32"

If shrunk, radial thickness around eyeholes _____ Are dowel pins fitted? _____ Crankshaft material Journals E.N.8 STEEL. Minimum 40 Tons/sq"

Webbs E.N.8 STEEL. Tensile strength 40 Tons/sq"

Diameter of flywheel 40" Weight 2180 LBS. Are balance weights fitted? No Total weight - Radius of gyration -

Diameter of flywheel shaft 6 3/4" Material E.N.8 STEEL. Minimum approved tensile strength 40 Tons/sq"

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which) INTEGRAL WITH CRANKSHAFT.

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 _____

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? SINGLE If single, position of gear thrust bearing MAIN THRUST. Is gearing of epicyclic type? No.

PCD of pinions: First reduction 8-6675" AHEAD. 7-9452" ASTERN. Second reduction - PCD of CLUTCHES. First reduction 16-85322" AHEAD. 16-1312" ASTERN. Main -

Material of pinions E.N. 25. 10LER. EN. 9. Tensile strength 55/65 & 45/45. Material of CLUTCHES. EN. 9. Tensile strength 45/55 T.S.

Are gear teeth surface hardened? No. How are teeth finished? SYKES CUT. Diameter of pinion journals 3.937" & 3.75" Wheel shaft journals 4.5" & 3.5440"

Are the wheels of welded construction? No. Is gearcase of welded construction? No. Has the wheel/gearcase been heat treated on completion of welding? - Where is the propeller thrust bearing located? OUTPUT SHAFT INTEGRAL WITH GEARBOX. 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. OIL OPERATED CLUTCHES INCORPORATED IN GEAR BOX. RUBBER BONDED FLEXIBLE COUPLING BETWEEN ENGINE AND GEAR BOX.

Can the main engine be used for purposes other than propulsion when declutched? No. If so, what? -

STRAIGHT SHAFTING. Diameter of thrustshaft _____ Material _____ Minimum approved tensile strength _____

Shaft separate or integral with crank or wheel shaft? INTEGRAL WITH WHEEL SHAFT. Diameter of intermediate shaft NONE. Material -

Minimum approved tensile strength _____ Diameter of screwshaft cone at large end 4 1/4" Is screwshaft fitted with a continuous liner? No.

Diameter of tube shaft. (If these are separate shafts) NONE. Is tube shaft fitted with a continuous liner in way of stern tube - Thickness of screw/tube shaft liner at bearings _____ Thickness between bearings _____ Material of screwshaft S.M. STEEL. Minimum approved tensile strength 28 TONS.

Is an approved oil gland fitted? YES If so, state type "BRUNTONS" Length of bearing next to and supporting propeller 18 3/8"

Material of bearing WHITE METAL. 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 52" Pitch 40" Built up or solid BUILT UP. Total developed surface 1295 sq"

No. of blades 4 Blade thickness at top of root fillet 1 1/2" Blade material MANGANESE BRONZE Moment of inertia of dry propeller _____

If propeller is of special design, state type NORMAL DESIGN. Is propeller of reversible pitch type? No. If so, is it of approved design? -

State method of control _____ Material of spare propeller NONE Moment of inertia _____

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine ONE Can they be declutched? YES (ABERDEEN CERTIFICATE NO. 1-AB N° 474)

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) ONE. 5.65 CU. FT PER MIN. F.A.D. DRIVEN BY STARBOARD AUXILIARY ENGINE. SOUTHAMPTON CERTIFICATE. N° D.13289.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) TWO MAIN AIR RECEIVERS EACH 3 1/4 CU. FT. PORT SIDE ENGINE ROOM. NOTTINGHAM CERTIFICATE N° C. 28394 & 5.

How are receivers first charged? HAND START AUXILIARY DIESEL ENGINE Maximum working pressure of starting air system 350 LBS/SQ" Are the safety devices 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 ONE No. of main engine lubricating oil coolers ONE.

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure ONE DAILY SERVICE FUEL TANK IN ENGINE ROOM AT FORWARD END OF CASING.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) ONE PRESSURE & ONE SCAVENGE LUBRICATING OIL. ONE SEA WATER. AND ONE FRESH WATER COOLING.

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					OVER BOARD
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling	
GENERAL SERVICE PUMP. 23 TONS/HOUR. DRIVEN BY AUXILIARY ENGINE SITUATED STARBOARD SIDE OF ENGINE Room.	X	X	X			X							X			X
OIL FUEL HAND PUMP.				X								X				

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room. HAND BILGE PUMPS:- FORWARD CABIN - ONE @ 2" BORE. FORE PEAK - ONE @ 2" BORE.

No. and size connected to main bilge line in main engine room ONE @ 2 1/2" FORWARD. ONE @ 2 1/2" AFT. In tunnel NO TUNNEL.

In aux. engine room - Size and position of direct bilge suctions in machinery spaces 2" HAND PUMP SUCTION AFT.

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 - cargo oil -? (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)
PORT.	3 CYL. 12 3/4" B.H.P.	LISTER & CO	BRISTOL. S.C. 7950	7 K.W. 110 VOLT GENERATOR.
STARBOARD.	3 CYL. 29 B.H.P.	LISTER & CO	BRISTOL. S.C. 7870	7 1/2 K.W. 110 VOLT GENERATOR.
				GENERAL SERVICE PUMP.
				AIR COMPRESSOR.
				OIL RETAIL PUMP.
				CARGO OIL PUMP.

Is electric current used for essential services at sea? No. If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea -

Is an electric generator driven by Main Engine? YES. 0.6 K.W. 24 VOLT.

STEAM INSTALLATION. No. of donkey boilers burning oil fuel ONE W.P. 50 LBS/SQ" Type "STONE" VAPOR STEAM GENERATOR.

Position ENGINE ROOM. PORT SIDE FORWARD.

Is a superheater fitted? No. Are these boilers also heated by exhaust gas? No. No. of donkey boilers heated by exhaust gas only? NONE. 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? -

boilers LONDON REPORT N° 140852. Is steam essential for operation of the ship at sea? No. Are any steam pipes over 3 ins. bore? No. If so, what is their material? -

For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? YES. No. of oil burning pressure units NONE. No. of steam condensers NONE. No. of evaporators NONE.

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) HAND STEERING GEAR ONLY.

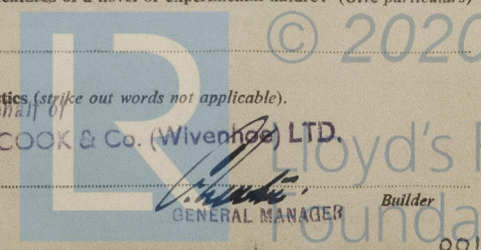
Have the Rule Requirements for fire extinguishing arrangements been complied with? YES. Brief description of arrangements ONE HAND EXTINGUISHER IN ENGINE ROOM ONE AT ENGINE ROOM ENTRANCE. ONE HYDRANT IN ENGINE ROOM.

Has the spare gear required by the Rules been supplied? No. 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 2 HOURS ON 6TH AUGUST 1959.

Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) No.

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).

OF AND ON BEHALF OF
JAMES W. COOK & Co. (Wivenhoe) LTD.



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 SHIP HAS BEEN BUILT AND INSTALLED UNDER SPECIAL SURVEY IN ACCORDANCE WITH THE SOCIETY'S RULES, PLANS APPROVED AND THE SECRETARY'S LETTERS.

THE MATERIALS AND WORKMANSHIP ARE OF GOOD QUALITY THROUGHOUT.

UPON COMPLETION THE MACHINERY WAS TRIED AT SEA UNDER WORKING CONDITIONS AND FOUND SATISFACTORY. NO GEAR HAMMER OR SHAFT VIBRATION WAS OBSERVED DURING THE TRIALS WHEN THE MACHINERY WAS OPERATED AND MANOEUVRED THROUGH THE COMPLETE SPEED RANGE.

THE MACHINERY OF THIS SHIP IS IN THE OPINION OF THE UNDERSIGNED ELIGIBLE FOR CLASSIFICATION IN THE REGISTER BOOK * L.M.C. 8.59 OIL ENGINE. ONE D.B. 50 LBS. OIL FIRED AND T.S. 0G. 8.59

[Signature]
Engineer 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 BCX 109; BCX 96; BCX 104; BCX 88: COVERED BY BATCH FORGING CERTIFICATES.

BHAM. C. 28068; C. 27772; C. 28067 & C. 26069.

CRANKSHAFT ~~ON ROTOR~~ J. 8999. Y.A. SHF. W.W. LON. 8/1/59.

FLYWHEEL SHAFT

THRUST SHAFT

GEARING LLOYDS LON. J.H.G. 6-6-58. M.W.D. 12018.

INTERMEDIATE SHAFTS NONE.

SCREW ~~SHAFTS~~ E. 28217. LLOYDS LTH. 2565 RH. IPS. 2-7-59 JP.

PROPELLERS P. 85254. LLOYDS IPS. JP. 29-6-59

OTHER IMPORTANT ITEMS DONKEY BOILER N° 20328. LLOYDS HYD. TEST 600 LBS. W.P. 300 LBS. WAR. 1-5-59

Is the installation a duplicate of a previous case? YES. If so, state name of vessel "BLACKMARTIN C"

Date of approval of plans for crankshaft 23-12-58 Straight shafting 18-11-58 Gearing Clutch

Separate oil fuel tanks Pumping arrangements 18-5-59 Oil fuel arrangements 15-5-59

Cargo oil pumping arrangements 22-12-58 Air receivers Donkey boilers

Dates of examination of principal parts:—

Fitting of stern tube 30-6-59 Fitting of propeller 8-7-59 Completion of sea connections 8-7-59 Alignment of crank shaft in main bearings 20-7-59

Engine checks & bolts 20-7-59 Alignment of gearing 20-7-59 Alignment of straight shafting 16-7-59 Testing of pumping arrangements 5-8-59

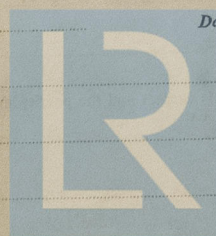
Oil fuel lines 5-8-59 Donkey boiler supports 8-7-59 Steering machinery 6-8-59 Windlass 6-8-59

Date of Committee TUESDAY - 6 OCT 1959 Special Survey Fee £25-0-0.

Decision See Rpt. 1

Expenses £6-0-0

Date when A/c rendered 29 SEP 1959



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