

Rpt. 4b

Date of writing report Received London Port **IPSWICH.** No. **141869.**
Survey held at **WIVENHOE.** In shops No. of visits On vessel **9** First date **17/11/59.** Last date **21/1/60.**

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. **42733** Name **"REDSHANK C."** Gross tons **146.35.**
Owners **J.W. Cook & Co Ltd** Managers **JAS. W. COOK & CO (WIVENHOE) LTD** Port of Registry **HULL.**
Hull built at **WIVENHOE.** By **JAS. W. COOK & CO (WIVENHOE) LTD** Yard No. **1192** Year Month When **1960. I.**
Main Engines made at **STAMFORD, Lincs.** By **LISTER BLACKSTONE & CO LTD** Eng. No. **EV4.P59H.127** When **1959. II.**
Gearing made at **SLOUGH, Bucks.** By **MODERN WHEEL DRIVE LTD**
Donkey boilers made at **-** By **-** Blr. Nos. **-** When **-**
Machinery installed at **WIVENHOE.** By **JAS. W. COOK & CO (WIVENHOE) LTD** When **1960. I.**

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 PETROLEUM IN BULK, FLASH POINT BELOW 150°F.**
Is ship to be classed for navigation in ice? **No** Is ship intended to carry petroleum in bulk? **YES.**
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 **1** No. of propellers **1** Brief description of propulsion system **OIL ENGINE WITH REVERSE REDUCTION GEARING TO SINGLE SCREW.**

MAIN RECIPROCATING ENGINES. Licence Name and Type No. **LISTER BLACKSTONE EVM. GR4. VERTICAL DIESEL.**
No. of cylinders per engine **4** Dia. of cylinders **8 3/4"** stroke(s) **12 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/IN²** (For DA engines give MIP top & bottom) Maximum cylinder pressure **300 LBS/IN²** 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 **1** Inlet **1** Exhaust **1** Starting **TWO IN SERIES.** Safety **1**
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? **-** 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 FT³** No. and total area of explosion relief devices **Two - 22 IN²** 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 sear? **BUILT UP SEAT** How is the engine started? **COMPRESSED AIR.**
Can the engine be directly reversed? **No** If not, how is reversing obtained? **M.W.D REV/RED GEAR BOX TYPE MW. 3B N° 12405.**
Has the engine been tested working in the shop? **YES.** How long at full power? **4 HOURS PLUS 1 HOUR ON 10% OVERLOAD.**

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system **17-6-59** 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? **-** Type **-** 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.**
Diameter of journals **6 3/4"** Diameter of crankpins Centre **6 1/8"** Side **-** 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 **EN.8 STEEL.** Webs **-** Minimum Approved Tensile strength **40 TONS/IN²**
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 **EN.8 STEEL.** Minimum approved tensile strength **40 TONS/IN²**
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 _____
 (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? SINGLE If single, position of gear thrust bearing. MAIN THRUST. Is gearing of epicyclic type? No.
 ANEAD. 8.6675" ASTERN. 7.9452" ANEAD. 16.85322" ASTERN. 16.1312"
 PCD of pinions: First reduction _____ Second reduction _____ PCD of intermediate reduction _____ Main _____

Material of pinions EN. 25. IDLER EN. 9. Tensile strength 55/65 + 45/45. Material of wheel rims EN. 9. Tensile strength 45/55 TONS.

Are gear teeth surface hardened? No How are teeth finished? SYKES CUT. Diameter of pinion journals 3.93" + 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 GEAR BOX. 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 BONDY 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 screw/tube shaft 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 7/8"

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 50" Pitch 42" Built up or solid BUILT UP. Total developed surface 6136 Cm²

No. of blades 4 Blade thickness at top of root fillet 63 M.M. Blade material NYLON Moment of inertia of dry propeller NOT AVAILABLE

If propeller is of special design, state type NYLON BLADES, BRONZE BOSS. Is propeller of reversible pitch type? No. If so, is it of approved design? _____
 State method of control _____ Material of spare propeller NONE (2 SPARE NYLON BLADES) Moment of inertia _____

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine ONE Can they be declutched? YES (ABERDEEN CERTIFICATE N^o 1)

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) ONE :- 7.15 CU. FT. (MIN. F.A.D.) DRIVEN BY PORT AUXILIARY ENGINE, SOUTHAMPTON CERTIFICATE N^o D. 14082

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2 MAIN AIR RECEIVERS EACH 3 1/4 CU. FT. FORWARD BULKHEAD S.S. ENG. ROOM. NOTTINGHAM CERTIFICATE N^o C. 3081B + C. 3081B.

How are receivers first charged? HAND START. AUXILIARY DIESEL ENGINE. Maximum working pressure of starting air system 350 LBS/IN² 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 1 No. of main engine lubricating oil coolers 1

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

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) ONE PRESSURE AND 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.	SUCTION										DELIVERY					
	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	OVER BOARD
GENERAL SERVICE PUMP. 23 TONS/HOUR. DRIVEN BY AUXILIARY ENGINE SITUATED PORT SIDE OF ENGINE ROOM.	X	X				X							X			X
OIL FUEL HAND PUMPS				X								X				
HAND BILGE PUMPS (5 THROUGHOUT SHIP).		X														X

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room HAND BILGE PUMPS :- FORE PEAK 1 @ 2" BORE. FORE CABIN 1 @ 2" BORE. PUMP ROOM 1 @ 2" BORE. FORWARD COFFERDAM 1 @ 2" BORE.

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

In aux. engine room _____ In tunnel NO TUNNEL.
 Suction Aft. _____ Size and position of direct bilge suction in machinery spaces 2" HAND PUMP.

Size and position of emergency bilge suction in machinery spaces 2" AT FORWARD END.
 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. 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.	2 CR. 19.5 B.H.P.	LISTER & CO	BRISTOL S.C. 8324	5K.W. 110 VOLT GENERATOR. G.S. PUMP. AIR COMPRESSOR.
STARBOARD.	3 CR. 29.0 B.H.P.	LISTER & CO	BRISTOL S.C. 8151	5K.W. 110 VOLT GENERATOR. 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 _____

STEAM INSTALLATION. No. of donkey boilers burning oil fuel _____ W.P. _____ Type _____
 Is an electric generator driven by Main Engine? YES. ONE 600 WATT 24/32 VOLT.

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.) HAND STEERING GEAR ONLY.

Have the Rule Requirements for fire extinguishing arrangements been complied with? YES. Brief description of arrangements 1-2 GALLON FOAM IN E.R. 1-2 GALL. FOAM F.R. ENTRANCE. 1-2 GALL. FOAM CABIN ENTRANCE FORE END. 1-2 HYDRANT E.R. 3-2 HYDRANTS ON DECK.

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 16-1-60. TWO HOURS.

Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) BUILT UP FOUR BLADED PROPELLER WITH NYLON BLADES AND BRONZE BOSS. SEE LONDON LETTER REF. ENG. AF 21-B-59 AND SUBSEQUENT CORRESPONDENCE.

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 and on behalf of
 JAMES W. COOK & Co. (Wivenhoe) Ltd.
 u. J. W. Smith
 GENERAL MANAGERS

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Lloyd's Register Foundation

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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 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 WHOLE SPEED RANGE.

THE MACHINERY OF THIS SHIP IS IN THE OPINION OF THE UNDERSIGNED ELIGIBLE FOR CLASSIFICATION IN THE REGISTER BOOK * LMC, 1.60 (N). ENGINE AND TS. 09 1.60. When one nylon propeller blade was fitted and weighing only 12 lbs 10 oz. is replaced with one of the same weight as the other three blades fitted to the bronze boss (i.e. 12 lbs 14 oz.) and two spare nylon blades each weighing 12 lbs 14 oz. are supplied. Subject to the nylon blades of this experimental propeller being removed for examination after six months service. See Secretary's letter dated 2/8/59 reference yard No. 185/6. The two spare blades now held as depot spares for this vessel weigh 11 lbs 8 oz and 12 lbs 10 oz respectively and are not considered suitable. The machinery has been tried under working conditions with the 11 lb 8 oz blade fitted and considerable propeller vibration was evident at full operating R.P.M. The Owners' Surveyors have arranged with Messrs. Blundell's to supply three new nylon blades each weighing 12 lbs 14 oz and these blades weighing in weight from 11 lbs 8 oz to 12 lbs 10 oz are to be returned to the manufacturers.

[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. 161-162-160-140. W.W. Lon. 7-9-59. COVERED BY BATCH CERTIFICATES BHAM. C. 38703, C. 39118, AND C. 35753.

CRANKSHAFT OR ROTORSHAFT 6600 T.D.S. NOT. W.W. Lon. 21-10-59.
 FLYWHEEL SHAFT INTEGRAL WITH CRANKSHAFT.
 THRUSTSHAFT INTEGRAL WITH WHEEL SHAFT.
 GEARING LLOYD'S LONDON. T.H.G. 27-10-59. M.W.D. 12405.
 INTERMEDIATE SHAFTS
 SCREW SHAFTS E.28473. LLOYD'S L.T.H. 2731 W.C. 19-5-59. IPS. 2-7-59 J.P.
 PROPELLERS P.84467 R.P. BAL. CPN. ED. 20-7-59.
 OTHER IMPORTANT ITEMS CYLINDER BLOCK WITH LINERS AND HEADS :- LLOYD'S TEST 100 LB. W.W. Lon. 27-8-59.

Is the installation a duplicate of a previous case? **Yes.** If so, state name of vessel **"SEAGULL C"**
 Date of approval of plans for crankshaft **17-6-59** Straight shafting **-** Gearing **-** Clutch **-**
 Separate oil fuel tanks **-** Pumping arrangements **8-9-59** Oil fuel arrangements **8-9-59**
 Cargo oil pumping arrangements **23-3-59** Air receivers **-** Donkey boilers **-**
 Dates of examination of principal parts:-
 Fitting of stern tube **12-11-59** Fitting of propeller **17-11-59** Completion of sea connections **5-11-59** Alignment of crank shaft in main bearings **11-12-59**
 Engine checks & bolts **11-12-59** Alignment of gearing **11-12-59** Alignment of straight shafting **11-12-59** Testing of pumping arrangements **14-1-60**
 Oil fuel lines **14-1-60** Donkey boiler supports **-** Steering machinery **14-1-60** Windlass **14-1-60**
 Date of Committee **FRIDAY 21 OCT 1960** Installation Special Survey Fee **£25.0.0**
 Decision **See Rpt. 1.** Expenses **£6.0.0**

Date when A/c rendered **15 FEB 1960**

