

Rpt. 4b

Date of writing report

Received London

Port

SUNDERLAND

No.

A38 2 MAY 1961

Survey held at

SUNDERLAND

No. of visits

In shops

On vessel

25

First date

17th SEPTEMBER 1960

Last date

28th MARCH 1961

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 11111

Name

M.V. "MONTROSE"

Gross tons

1993

Owners MESSRS MONTSHIP LINES

LTD.

Managers BUIRIES MARKES LTD.

Port of Registry

LONDON

Hull built at SUNDERLAND

By

BARTRAM & SONS LTD.

Yard No.

386

Year Month
When 1961. 3

Main Engines made at WALLSEND

By

NORTH EASTERN MARINE
ENGINEERING CO. LTD.

Eng. No.

3414

When 1961. 3

Gearing made at

WEST HARTLEPOOL

By

W. GRAY & CO. LTD. CENTRAL MARINE ENG.
WORKS.

R471 (SPANNER J3081)

1960. 9

AUX

Boilers made at

ANNAN

By

COCHRAN & CO (ANNAN) LTD

Blr. Nos.

22357

When 1960. 8

Machinery installed at SUNDERLAND

By

GEORGE CLARK (SUNDERLAND) LTD.

When 1961. 3

Particulars of restricted service of ship, if limited for classification

NONE

Particulars of vegetable or similar cargo oil notation, if required

NONE

Is ship to be classed for navigation in ice?

No

Is ship intended to carry petroleum in bulk?

No

Is refrigerating machinery fitted?

YES

If so, is it for cargo purposes?

YES

Type of refrigerant DICHLORODIFLUOROMETHANE

Is the refrigerating machinery compartment isolated from the propelling machinery space?

YES

Is the refrigerated cargo installation intended to be classed?

YES

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

DIRECT COUPLED HEAVY OIL ENGINE.

MAIN RECIPROCATING ENGINES. Licence Name and Type No.

No. of cylinders per engine

Dia. of cylinders

stroke(s)

2 or 4 stroke cycle

Single or double acting

Maximum approved BHP per engine

at

RPM of engine and

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?

How is the engine started?

Can the engine be directly reversed?

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

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

Approved

Webs

Tensile strength

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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Foundation

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. (A small diagram should be attached showing gas cycle.)

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? 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 Material Minimum approved tensile strength

Shaft separate or integral with crank or wheel shaft? Diameter of intermediate shaft Material Minimum approved tensile strength

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 Thickness between bearings Material of screw/tube shaft Minimum approved tensile strength

Is an approved oil gland fitted? If so, state type Length of bearing next to and supporting propeller

Material of bearing In multiple screw shafts 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 Pitch Built up or solid Total developed surface

No. of blades Blade thickness at top of root fillet Blade material Moment of inertia of dry propeller

If propeller is of special design, state type Is propeller of reversible pitch type? 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 Can they be declutched?

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) 2 - 183.2 c.f.m. - ELECTRIC MOTOR DRIVEN. STABOARD SIDE BOTTOM E.R. PLATFORM. SOUTHAMPTON CERTS. D1601/2

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 - TOP AFT END OF ENGINE ROOM - NEWCASTLE C 72040. 1 AUX. RECV. STAR SIDE BOTTOM PLATFORM. MANCHESTER CERTIFICATE No. 81258

How are receivers first charged? HAND OPERATED COMPRESSOR Maximum working pressure of starting air system 350 P.S.I.G. 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 3 HEAVY OIL FUEL SETTLING TANKS, 1 BOILER OIL FUEL TANK, 2 DIESEL OIL SETTLING TANKS, 2 OIL FUEL BUNKERS. FOR END OF ENGINE ROOM ATWARTSHIPS.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) NONE

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	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cooling
ELECTRICALLY DRIVEN															
SEA WATER. PORT SIDE BOTTOM PLAT. PORT SIDE FOR					X					X					
FRESH WATER (2). BOTTOM PLAT. PORT SIDE AFT					X						X				
LUB. OIL (2). BOTT. PLATFORM								X						X	
BALLAST. PORT SIDE BOTT. PLATFORM	X	X	X							X					
BILGE. PORT SIDE BOTT. PLATFORM	X	X											X		
GENERAL SERVICE. BOTT. PLAT. PORT FOR	X	X	X										X		
BOILER FEED (2). BOTT. PLAT. STAR FOR							X		X	X					
AUX. FRESH WATER. BOTT. PLAT. FOR END STAR					X						X				
FUEL OIL TRANSFER. BOTT. PORT FOR				X								X			
FUEL OIL SERVICE. BOTT. PLAT. FOR STAR				X									X		
DIESEL OIL TRANSFER. BOTT. PLAT.				X								X			
DIESEL OIL FUEL VALVE COOLING (2).				X											

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room. No. 1 Hold - 3" @ 3". No. 2 Hold - 2 1/2". No. 3 Hold - 2 1/2". COFFERDAM - 2 1/2". PIPE TUNNEL - 2 1/2". DEEP TANK - 4 1/2". No. 4 Hold - 2 1/2". D.B. COFFERDAM - 1 1/2". HOLD WELL - 1 1/2". TONNAGE WELL - 2 1/2".

No. and size connected to main bilge line in main engine room. 4 @ 3" AND 2 @ 2". In tunnel 1 @ 3"

Size and position of direct bilge suction in machinery spaces. PORT SIDE

Size and position of emergency bilge suction in machinery spaces. 1 - 1 1/2" PORT SIDE

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? YES Do the piping arrangements comply with the Rules? YES

special requirements for ships carrying petroleum in bulk, cargo oil or 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)
BOTTOM E.R. PLATFORM	4-B.C.B.A. OIL ENGINE			
STAR FOR OUTBOARD	EVOMAG	BLACKSTONE & CO	LONDON No. 144074	275 KW. D.C. GENERATOR
STAR FOR INBOARD	"	"	"	"
STAR AFT INBOARD	"	"	"	"

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 @ 275 KW.

Is an electric generator driven by Main Engine? NO

STEAM INSTALLATION. No. of boilers burning oil fuel. 1 W.P. 100 PSIG Type COCHRAN VERTICAL

Position PORT SIDE FOR BOTTOM ENGINE ROOM PLATFORM

Is a superheater fitted? NO Are these boilers also heated by exhaust gas? NO No. of boilers heated by exhaust gas only? 1 W.P. 100 PSIG

Type SPANNER Position IN FUNNEL CASING AT BOAT DECK 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? ONLY AS AN ECONOMISER Port and No. of report on Aux. COCHRAN BLR. - GLASGOW No. 9489

boilers SPANNER BLR. - W. HARTLEPOOL 2048 Is steam essential for operation of the ship at sea? YES 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

No. of steam condensers. 1 No. of Evaporators. NONE

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars). 1 - HASTIE ELECTRIC HYDRAULIC GEAR

No. H.G. 8087/8. 2 RAMS. 2 HELE SHAW PUMPS No. K12260/1. 2 ELECTRIC MOTORS NOS. 3030922/3.

Have the Rule Requirements for fire extinguishing arrangements been complied with? YES Brief description of arrangements. 9 - 2 GALL. PORTABLE FOAM: 1 - 10 GALL. FOAM: 1 - 34 GALL. FOAM: 1 - SANDBIN: 2 - 2 1/2 FIREMAIN CONNECTIONS: CO2 SMOOTHERING SYSTEM.

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. 27-3-61 Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) NONE

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).

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 constructed and installed under Special Survey, in accordance with the Rules, approved plans and the Secretary's letters. The materials and workmanship are good. The machinery has been securely fitted on board the vessel and tested under full working conditions, with satisfactory results.

The auxiliary boilers have also been securely fixed on board and the safety valves adjusted under steam to a pressure of 100 lb/sq" and tested for accumulation and found satisfactory. The requirements of the Rules, Chapter E, Section 3 have been complied with.

The machinery is eligible, in my opinion, to be classed in the Register Book with the record of + L.M.C. 3, 61; T.S(O.G) 3, 61 and 2-AB 100 lb/sq" 3, 61.

The main engine is not to be operated continuously between 40 and 60 R.P.M.

F. Wilson

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

CRANKSHAFT OR ROTOR SHAFT

FLYWHEEL SHAFT

THRUST SHAFT

GEARING

INTERMEDIATE SHAFTS

SCREW AND TUBE SHAFTS

PROPELLERS

OTHER IMPORTANT ITEMS

SEE NEWCASTLE CERTIFICATE No. 117725

Is the installation a duplicate of a previous case? No

If so, state name of vessel

Date of approval of plans for crankshaft 23-5-60

Straight shafting 4-8-60

Gearing

Clutch

Separate oil fuel tanks 11-5-60

Pumping arrangements 11-11-60

Oil fuel arrangements 11-11-60

Cargo oil pumping arrangements

Air receivers 19-7-60

Donkey boilers

Dates of examination of principal parts:-

Fitting of stern tube 18-9-60

Fitting of propeller 21-9-60

Completion of sea connections 21-9-60

Alignment of crankshaft in main bearings 20-2-61

Engine chocks & bolts 20-2-61

Alignment of gearing

Alignment of straight shafting 20-1-61

Testing of pumping arrangements 27-3-61

Oil fuel lines 9-2-61

AUX. boiler supports 17-3-61

Steering machinery 27-3-61

Windlass 27-3-61

FRIDAY 23 JUN 1961

Date of Committee

Special Survey Fee

Decision

INSTALLATION

£ 166 : 5 : 0

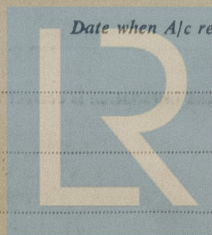
+ L.M.C.

Expenses

3.61 { 2 Aux 100 Gs
T.S (O.G)

Date when A/c rendered

27 APR 1961



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