

Rpt. 4b

10 FEB 1958

Date of writing report 16th January, 1958

Received London

Port KIEL

No. 1952

Survey held at

In shops 7
No. of visits
On vesselFirst date 23rd September, 57
Last date 15th January, 1958

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name Gross tons

Owners Managers Port of Registry Year Month

Hull built at Haarlem, Amsterdam By Haarlemsche Scheepsbouw-Mij. Yard No. 552 When 1957

Main Engines made at Kiel-Friedrichsort By MAK Maschinenbau Kiel Aktienges Eng. No. 13330 13331 13332 When 1957

Gearing made at By

Donkey boilers made at By Blr. Nos. When

Machinery installed at By When

Particulars of restricted service of ship, if limited for classification

Particulars of vegetable or similar cargo oil notation, if required

Is ship to be classed for navigation in ice? Is ship intended to carry petroleum in bulk?

Is refrigerating machinery fitted? 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 three No. of propellers - Brief description of propulsion system intended for electrical propulsion

MAIN RECIPROCATING ENGINES. Licence Name and Type No. MAK Type MA 301C

No. of cylinders per engine 8 Dia. of cylinders 230 mm stroke(s) 300 mm 2 or 4 stroke cycle 4 Single or double acting single

Maximum approved BHP per engine 770 at 750 RPM of engine and - RPM of propeller.

Corresponding MIP 9.3 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 60 kgs/cm² Machinery numeral 154 x 3

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? No. of exhaust gas driven blowers per

FOUR STROKE ENGINES. Is the engine supercharged? yes Are the undersides of the pistons arranged as supercharge pumps? Can engine operate without supercharger? yes

engine one No. of supercharge air coolers per engine Supercharge air pressure 1.6 atü Exhaust one Starting one Safety one

TWO & FOUR STROKE ENGINES-GENERAL. No. of valves per cylinder: Fuel one Inlet one Exhaust one

Material of cylinder covers c.i. Material of piston crowns light metal Is the engine equipped to operate on heavy fuel oil? no

Cooling medium for cylinders f.w. Pistons f.w. Fuel valves Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? no Is welded construction employed for: Bedplate? c.i. Frames? c.i. Entablature? c.i. Is the crankcase separated from the

underside of pistons? Is the engine of crosshead or trunk piston type? trunk Total internal volume of crankcase 1120 ltrs. No. and total area of explosion relief

devices 8 - 424 cm² 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? How is the engine started? compr.air

Can the engine be directly reversed? yes If not, how is reversing obtained? 60 hrs.

Has the engine been tested working in the shop? yes How long at full power? 1.1.1958 State barred speed range(s), if imposed

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 1.1.1958 Is a governor fitted? yes Is a torsional vibration damper or detuner fitted to the shafting? yes

for working propeller For spare propeller No. of main bearings 9 Are main bearings of ball or roller

Where positioned? forward Type friction

type? Distance between inner edges of bearings in way of crank(s) 245 mm Distance between centre lines of side cranks or eccentrics of opposed piston engines

Crankshaft type: Built, semi-built, solid. (State which) solid 150 mm dia. with 280 mm Axial thickness of webs 65 mm

Diameter of journals 155 mm Diameter of crankpins Centre 60 mm dia. Breadth of webs at mid-throw SM steel Minimum

If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals SM steel Approved

Diameter of flywheel 900 mm Weight 220 kg Are balance weights fitted? no Total weight Radius of gyration

Diameter of flywheel shaft Material integral with crankshaft

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

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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?

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?

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?.....

description and, for clutches, state how operated Stromag Periflex-coupling F 303

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

Shaft separate or integral with crank or wheel shaft? Diameter of intermediate shaft Material

Minimum approved tensile strength Diameter of screwshaft cone at large end Is screwshaft fitted with a continuous liner?

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
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 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?

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

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate)

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate)

How are receivers first charged?.....

accordance with the Rules?..... Has the starting of the main engines been tested and found satisfactory?.....

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure.....

MAIN ENGINE DRIVEN PUMPS (No. and Purpose)..... 1 fresh water pump, 1 sea water pump.

Name below essential pumps, state position and how driven. Give capacity of bilge pumps.

[illegible]

No. and size connected to main bilge line in main engine room..... In tunnel.....

In aux. engine room..... Size and position of direct bilge suction in machinery spaces.....

..... Size and position of emergency bilge suction in machinery spaces.....

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side?..... Do the piping arrangements comply with the Rules including special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (*strike out words not applicable*).

[illegible]

Is an electric generator driven by Main Engine?

Position _____ No. of tonnage boilers heated by exhaust gas only? _____ W.P. _____

Type	Position	Port and No. of report on don
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boilers.....	Is steam essential for operation of the ship at sea?.....
	No. of oil burning pres

units..... No. of steam condensers..... No. of Evaporators.....

Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

... if the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable).

The foregoing description of the main engine and installation is correct and true.

MaK

Maschinenbau Kie
Aktiengesellschaft

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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.

These engines have been built under special survey in accordance with the Secretary's letters, approved plans and the Rules. The material and workmanship are good and when examined on the test bed under full load, the engines were found in order.

The engines are eligible, in my opinion, for installation in a classed vessel with notation of * LMC.

These engines are intended for electrical propulsion.

Robert Thomas

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.)

Engine No. 13330
RODS Cyl. 1. LLOYD'S KEL No. 2087/32 ES 20.5.57 E Engine No. 13331 ES 20.5.57 ES Engine No. 13332 ES 28.6.57 ES
2: " 2088/36 2132-9 2134-20
3: " 2087/46 2088/51 2134-33
4: " 2087/22 2138-10 2134-1
5: " 2088/34 2134-4 2132-38 2134-2
CRANKSHAFT FOR ROTOR SHAFT 2088/50 2132-8 2132-5 2133-11
6: " 2088/31 2132-27
8: " 2087/41 2132-21
FLYWHEEL SHAFT - Crankshafts: LLOYD'S DSF 2148 28.5.57 HS KEL 23.9.57 AK
THRUST SHAFT - LLOYD'S DSF 2145 28.5.57 HS KEL 23.10.57 AK
LLOYD'S DSF 2142 HS 28.5.57 KEL 23.10.57 AK
GEARING -
INTERMEDIATE SHAFTS -
SCREW AND TUBE SHAFTS -
PROPELLERS -

OTHER IMPORTANT ITEMS Cylinder Blocks: 13330: LLOYD'S TEST KEL No. 2291 8 kg/cm² AK 7.10.57 AK
13331: LLOYD'S TEST KEL No. 2292 8 kg/cm² AK 22.10.57 AK
13332: LLOYD'S TEST KEL No. 2293 8 kg/cm² AK 22.10.57 AK

Control Station: LLOYD'S KEL 2291 9.12.57 AK Blower: LLOYD'S TEST AE 21.5.57 B
LLOYD'S KEL 2292 15.1.58 AK LLOYD'S TEST AC 21.5.57
LLOYD'S KEL 2293 6.1.58 AK LLOYD'S TEST AC 21.5.57 R

Is the installation a duplicate of a previous case? -

If so, state name of vessel -

Date of approval of plans for crankshaft 10.2.56

Straight shafting -

Gearing -

Clutch -

Separate oil fuel tanks -

Pumping arrangements -

Oil fuel arrangements -

Cargo oil pumping arrangements -

Air receivers -

Donkey boilers -

Dates of examination of principal parts:-

Fitting of stern tube -

Fitting of propeller -

Completion of sea connections -

Alignment of crankshaft in main bearings

7.10.57

23.10.57

23.10.57

Engine chocks & bolts -

Alignment of gearing -

Alignment of straight shafting -

Testing of pumping arrangements -

Oil fuel lines -

Donkey boiler supports -

Steering machinery -

Windlass -

Date of Committee

FRIDAY 19 JUN 1959

Construction

Special Survey Fee

£ 189. 7. 6

AR 7:

Decision

See Rpt. 1

Test bed trials

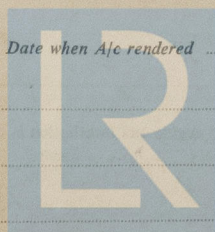
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Expenses

Date when A/c rendered

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