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28 AUG 1963 FEB 1963

Rpt. 4b

Date of writing report 28/1'63 Received London Port of Amsterdam No. 25256
Survey held at Amsterdam No. of visits 17 In shops 23-3-1962 First date 4-12-1962 Last date

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 By Messrs. Haarlemsche Scheepsbouw Mij Yard No. 581 When
Main Engines made at Amsterdam By Werkspoor N.V. Eng. No. 2490 When 1962

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

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.

No. of main engines one No. of propellers Brief description of propulsion system

MAIN RECIPROCATING ENGINES. Licence Name and Type No. TMAS 278
No. of cylinders per engine 8 Dia. of cylinders 270 mm stroke(s) 500 mm 2 or 4 stroke cycle 4 Single or double acting single
Maximum approved BHP per engine 580 at 375 RPM of engine and 182 - 209 RPM of propeller.
Corresponding MIP 7.5 kg/cm2 Maximum cylinder pressure 50 kg/cm2 Machinery numeral 116

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

FOUR STROKE ENGINES. Is the engine supercharged? no 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 one Inlet one Exhaust one Starting one Safety one
Material of cylinder covers cast iron Material of piston crowns cast iron Is the engine equipped to operate on heavy fuel oil? no
Cooling medium for: Cylinders fresh water Pistons uncooled Fuel valves uncooled 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 4124 litres
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? by air

Can the engine be directly reversed? yes If not, how is reversing obtained?
Has the engine been tested working in the shop? yes How long at full power? 10 - 12 hours

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 2/1'63 State barred speed range(s), if imposed for working propeller For spare propeller Is a governor fitted? yes Is a torsional vibration damper or detuner fitted to the shafting? yes
Where positioned? forward Type Holset No. 2650 No. of main bearings 9 Are main bearings of ball or roller type? no Distance between inner edges of bearings in way of crank(s) 316 mm 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 200 mm Diameter of crankpins Centre 200 mm Breadth of webs at mid-throw 360 mm Axial thickness of webs 92 mm
Side Pins Minimum
If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals SM steel Approved 44 kg/mm2
Webs Tensile strength
Diameter of flywheel 1120 mm Weight 1250 kg Are balance weights fitted? no 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) integral with crankshaft.



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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
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 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 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 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 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 none Can they be declutched?

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) two - 620 litres each. Cert. KLN.C 60/644 - 61/382
How are receivers first charged? Maximum working pressure of starting air system Are the safety devices in accordance with the Rules? Has the starting of the main engines been tested and found satisfactory? yes

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

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) one fresh waterpump 28 t/h; seacooling waterpump 28 t/h, lub.oil pump - 6250 litres/h.

Table with columns: INDEPENDENT PUMPS, SUCTION (Bilge Main, Bilge Direct, Ballast Main, Oil Fuel, Fresh Water Cooling, Sea, Feed Tanks, Lub. Oil), DELIVERY (Boiler Feed, Salt Water Cooling, Fresh Water Cooling, Oil Fuel Tanks, Fire Main, Lub. Oil, Piston Cooling). Includes text: Name below essential pumps, state position and how driven. Give capacity of bilge pumps.

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room

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).

STEAM & OIL ENGINE AUXILIARIES

Table with columns: Position of each, Type, Made by, Port and No. of Rpt. or Cert., Driven Machinery (For electric generators, state output)

Is electric current used for essential services at sea? 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?

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)

Have the Rule Requirements for fire extinguishing arrangements been complied with? Brief description of arrangements

Has the spare gear required by the Rules been supplied? Has all the machinery been tried under full working conditions and found satisfactory? Date and duration of full-power sea trials of main engines 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).



**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.*

This engine has been built under Special Survey in accordance with the Rules, approved plans and Secretary's letters. Tested materials have been used and the workmanship is good.

The engine was tested under full load conditions on Maker's testbed and all found satisfactory.

In my opinion this engine merits the approval of the Committee and after having been satisfactorily fitted onboard and tested under working conditions, this vessel may be recorded in the Society's Register Book \* LMC with date.

*A.C. Buijze*  
A.C. Buijze  
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 Lloyds AMS No. 7788<sup>A</sup> AB 13/9'61, No. 9122<sup>C-E</sup>, 9123<sup>E-J-L</sup>, 9124<sup>A</sup> AB 23/3'62, 9136<sup>A</sup> AB 28/3'62

CRANKSHAFT OR ROTORSHAFT Lloyds Rot No. 1244 EMD HA 16-11-60 ✓

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING

INTERMEDIATE SHAFTS

SCREW AND TUBE SHAFTS

PROPELLERS

OTHER IMPORTANT ITEMS air receivers : Nos. 15454 - 16471 ✓  
Lloyds test KLN 60 kg/cm<sup>2</sup>  
W.P. 30 kg  
KB 24/6'60 - KW 22-2-61

Is the installation a duplicate of a previous case? If so, state name of vessel

Date of approval of plans for crankshaft 7/9'62 Straight shafting Gearing Clutch

Separate oil fuel tanks Pumping arrangements Oil fuel arrangements

Cargo oil pumping arrangements Air receivers 7/9'62 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 31/8'62

Engine checks & 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 20 SEP 1963** Special Survey Fee f. 515.--

Decision *See Ans 25577*

turnover tax " 21,88

Expenses " 10.--

Date when A/c rendered 22/2/1963

