

pt. 4b

Date of writing report 9-12-57

Received London 23 DEC 1957

Port BREMEN

No. 3115

Place held at Bremerhaven

No. of visits In shops 15

First date 15.2.57

Last date 2.12.57

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

Name Motor Tug "CULEX" Gross tons

Managers Port of Registry

built at Bremerhaven By SCHICHAU WERFT Yard No. 1674 When 1957 12

Engines made at Köln By Klöckner-Humboldt-Deutz A.G. Eng. No. 2081529-36 When 6-56

Eng made at Augsburg By Z. Renk A.G.

Boilers made at By Blr. Nos. When

Machinery installed at Bremerhaven By SCHICHAU WERFT When 12-57

Particulars of restricted service of ship, if limited for classification For towing services on the River Thames.

Particulars of vegetable or similar cargo oil notation, if required

Is ship to be classed for navigation in ice? No. Is ship intended to carry petroleum in bulk? No.

Refrigerating machinery fitted? No. If so, is it for cargo purposes? No. Type of refrigerant

Refrigerating machinery compartment isolated from the propelling machinery space? No. Is the refrigerated cargo installation intended to be classed? No.

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 thing 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 thro reverse reduction gear

IN RECIPROCATING ENGINES. Licence Name and Type No. SV 8 M 545

No. of cylinders per engine 8 Dia. of cylinders 320 mm, stroke 450 mm 2 or 4 stroke cycle 4 Single or double acting S.

Minimum approved BHP per engine 660 at 375 RPM of engine and 180 190 RPM of propeller.

Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure Machinery numeral 132

Are the cylinders arranged in Vee or other special formation? If so, number of crankshafts per engine

STROKE ENGINES. Is the engine of opposed piston type? If so, how are upper pistons connected to crankshaft?

Are 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

Are 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? See KÖLN

Is a stand-by or emergency pump or blower fitted, state how driven? No. of scavenge air coolers Scavenge air pressure at full load

Are scavenge manifold explosion relief valves fitted?

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 RPT. Supercharge air pressure No 115 Can engine operate without supercharger?

& 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?

Grinding medium for:—Cylinders Pistons Fuel valves Overall diameter of piston rod for double acting engines

Is the piston rod fitted with a sleeve? Is welded construction employed for: Bedplate? Frames? Entablature? Is the crankcase separated from the base of pistons? Total internal volume of crankcase 3.52 m³ No. and total area of explosion relief

Are flame guards or traps fitted to relief devices? Is the crankcase readily accessible? If not, must the engine be removed for access? 4-380 mm² total

How is the engine secured directly to the tank top or to a built-up seating? Built seating How is the engine started? Comp air.

Can the engine be directly reversed? No. If not, how is reversing obtained? reverse reduction gear.

Has the engine been tested working in the shop? How long at full power? 24/7/57

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system State barred speed range(s), if imposed

Is a governing propeller fitted? For spare propeller 100 RPM. Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?

Positioning? Type See KÖLN No. of main bearings Are main bearings of ball or roller

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

Shaft type: Built, semi-built, solid. (State which)

Number of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs

Side Pins Minimum

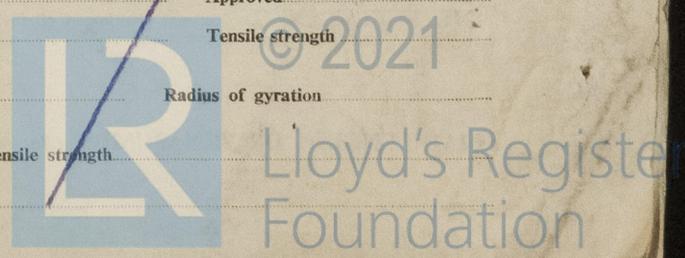
Radial thickness around eyeholes RPT. Are dowel pins fitted? No. 115 Crankshaft material Journals Approved

Web Tensile strength

Number of flywheel Weight Are balance weights fitted? Total weight Radius of gyration

Number of flywheel shaft Material Minimum approved tensile strength

No. of Vee shaft: separate, integral with crankshaft, integral with thrustshaft. (State which)



MAIN GAS TURBINES. Name and Type No.

No. of sets of turbines Open or closed cycle BHP per set at RPM of output shaft 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 Third 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

Cent. No. 6953

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.

Periflex Coupling

Can the main engine be used for purposes other than propulsion when declutched? Yes If so, what? 10 kW generator

STRAIGHT SHAFTING. Diameter of thrustshaft. 220 mm Material S.M.S. Minimum approved tensile strength.

Shaft separate or integral with crank or wheel shaft? 195 mm Diameter of intermediate shaft 220 mm Material S.M.S.

Minimum approved tensile strength 50.11 k/mm² Diameter of screwshaft cone at large end 220 mm Is screwshaft fitted with a continuous liner? NO

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 S.M.S. Minimum approved tensile strength 50.11 k

Is an approved oil gland fitted? Yes If so, state type Newark Length of bearing next to and supporting propeller 740 mm

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 2.3 m² Pitch 2 M. Built up or solid Solid Total developed surface 2.9 m²

No. of blades 3 Blade thickness at top of root fillet 95 mm Blade material Cast Iron Moment of inertia of dry propeller 1400 kg/m²

If propeller is of special design, state type NO Is propeller of reversible pitch type? NO 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 ONE Can they be declutched? NO

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

IPSWICH CERT NO. D50029

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) 2 x 250 Hrs P.S. F.G.A.

Cent HNO C 56/74. Cent. DSF. C 7639

How are receivers first charged? Hand start diesel driven compressor Maximum working pressure of starting air system 30 kg/cm² 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 1 P.fwd 1 S.fwd 1 P.aft 1 S.aft

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) 1 x S.W. 1 x Bilge 1 x lub oil 1 x F.W.

INDEPENDENT PUMPS

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

Name	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
G.S. S.S. Aux. diesel driven 60 T/Hr. DIESEL driven 140 oil S.S. St. by. lub. oil E.D. P.S.	X	X	X		X	X					X	X	X		
								X						X	
								X						X	

on plan

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room Under fwd. accom. 1 x 2 1/2" diam. Under aft. accom. 1 x 2 1/2" diam.

No. and size connected to main bilge line in main engine room Aft. 1 x 2 1/2" diam

In aux. engine room - In tunnel -

Size and position of direct bilge suction in machinery spaces 1 x 2 1/2" aft.

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? NO Do the piping arrangements comply with the Rules including special requirements for separating petroleum in hull cargo oil or closed for navigation in ice? Yes

OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
<u>Stbd side</u>	<u>DIESEL</u>	<u>Russell Newbury.</u>	<u>London Cert. D 51370 Eng. No. 20 CL 1019.</u>	<u>7.5 KW.</u>

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. (10 KW.)

TEAM INSTALLATION. No. of donkey boilers burning oil fuel - W.P. - Type -

Is a superheater fitted? - Are these boilers also heated by exhaust gas? - No. of donkey boilers heated by exhaust gas only? - W.P. -

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 -

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 vessels - No. of steam condensers - No. of Evaporators -

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

Type GLS. Cent C 32849 Electric motor assisted hand

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 1 hydrant with hose + nozzle (spray type) 2 x 29 gallon foam 2 x hand C.T.C. 1 x 10 gallon foam.

Is 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 sea trials of main engines 10.10.57 7 hrs 28.11.57 8 hrs. Does this machinery installation contain any features of a novel or experimental nature? (Give particulars) NONE

Is the foregoing description of the main engine and installation correct and the particulars as approved for torsional vibration characteristics (strike out words not applicable)? Yes

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 machinery has been satisfactorily installed in this ship in conformity with the Society's Rules and Regulations, the Secretary's letters. The machinery has been examined under working conditions during sea trials, and all was found satisfactory. The machinery is in my opinion eligible to receive the Society's class with the record + L.M.C. 12.57 and the notation T.S. O.G.

RECORDS FOR REGISTER BOOK

M.N. 132 4. S.C.S.A. 8 c/y.s. 320mm x 450mm.

Crankcase explosion relief devices are fitted to the Main engine.

A trip stopper has been fitted to the Main engine control lever to prevent engine running below 100 R.P.M. unless stopper is disengaged manually. Slight gear hammer below 100 R.P.M. and no gear hammer above 100 R.P.M. noticed on trials See London Ltr. 27.7.56.

S. R. Matthews
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

KÖLN RPT. No. 115

CRANKSHAFT OR ROTORSHAFT

FLYWHEEL SHAFT

THRUSTSHAFT

AUGSBURG CERT. No. 6953.

GEARING

INTERMEDIATE SHAFTS DTM. 85, 86, 87, 88 H.K. 19.11.56.

SCREW SHAFTS

DTM. 84 H.K. 19.11.56

PROPELLERS

OTHER IMPORTANT ITEMS

Coupling halves DSF 207 A.H. Ma. 29.10.56

Is the installation a duplicate of a previous case?

No.

If so, state name of vessel

Date of approval of plans for crankshaft

18.2.55

Straight shafting

14.5.56

Gearing

Clutch

Separate oil fuel tanks

20.12.56

Pumping arrangements

8.6.56

Oil fuel arrangements

8.6.56

Cargo oil pumping arrangements

—

Air receivers

Donkey boilers

—

Dates of examination of principal parts:—

Fitting of stern tube

1.9.57

Fitting of propeller

26.11.57

Completion of sea connections

1.9.57

Alignment of crank shaft in main bearings

—

Engine chocks & bolts

4.10.57

Alignment of gearing

4.10.57

Alignment of straight shafting

4.10.57

Testing of pumping arrangements

10.10

Oil fuel lines

10.10.57

Donkey boiler supports

—

Steering machinery

10.10.57

Windlass

10.10.57

Date of Committee

FRIDAY - 7 MAR 1958

Decision

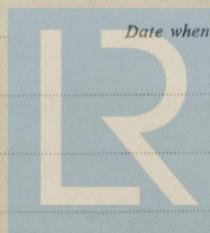
See Rpt. 1.

Special Survey Fee
INSTALLED

£35-0-0.

Expenses

£7-10-0.



Date when A/c rendered
3/11/58

Lloyd's Register
Foundation