

Rpt. 4b

Date of writing report 28.4.62 Received London Port ROUEN No. ROU. F.E. 38
Survey held at Rouen No. of visits In shops 39 First date 18.8.60 Last date 19.10.61
On vessel 57 17.4.61 15.2.62

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 41388 Name M.V. "N O R W I D" Gross tons 5.562
Owners Polish Ocean Lines Managers Port of Registry Gdynia
Hull built at Grand-Quevilly By Ch. Reunis Loire Normandie Yard No. R. 323 Year Month
When 1962.1
Main Engines made at Saint Nazaire By Chantiers de l'Atlantique Eng. No. G.21 No. 389 When 1961.9
Gearing made at - By -
Donkey boilers made at Saint Nazaire By Chantiers de l'Atlantique Blr. Nos. 2605 When 1961.5
Machinery installed at Grand-Quevilly By Chantiers Reunis Loire-Normandie When 1962.1
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? No Type of refrigerant Dichlorodifluoromethane
Is the refrigerating machinery compartment isolated from the propelling machinery space? No Is the refrigerated cargo installation intended to be classed? None

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 Oil engine direct drive

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Sulzar 8 SAD 72 type

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 7.75 Kgs/cm² (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? YES

If a stand-by or emergency pump or blower is fitted, state how driven None No. of scavenge air coolers None 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 NO. Is the engine equipped to operate on heavy fuel oil? YES

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? 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 102.5/105.5 pm 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 Pins Minimum

Approved 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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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? 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 375 mm Material S.M.O.H. Forged Steel
Minimum approved tensile strength 44 Kgs/mm² Diameter of screwshaft cone at large end 455 mm Is screwshaft fitted with a continuous liner? Yes

Diameter of tube shaft. (If these are separate shafts) Is tube shaft fitted with a continuous liner in way of stern tube Thickness of screwshaft liner at bearings 23 mm & 23 mm Thickness between bearings 20 mm Material of screwshaft S.M.O.H. Forged Steel Minimum approved tensile strength 44 Kgs/mm²

Is an approved oil gland fitted? No If so, state type Length of bearing next to and supporting propeller 1900 mm

Material of bearing Lignum Vitae 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?
abk 5370

PROPELLER. Diameter of propeller 5.15 m Pitch 4625 mm Built up or solid solid Total developed surface 10415 m²

No. of blades 4 Blade thickness at top of root fillet 187.75 mm Blade material bronze Moment of inertia of dry propeller

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 bronze Moment of inertia

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine 1000 Can they be declutched?

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) Two, each 210 m³/H.R. at 30 Kgs/cm²

Electric motor, SF & SA (ER lower platform) SOU. Nos D 16947/8 - One 14 m³/H.R. hand start di (emergency) Lower ER (S.S.A.)

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Two main 7 m³ stard fwd & stard aft

on 1st platform ER (SS) Nantes No. 968. Aux. Receiver (one) 28.38 c.ft. NOTTINGHAM C 33596

How are receivers first charged? Hand start diesel compressor Maximum working pressure of starting air system 30 Kgs/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 TWO No. of main engine lubricating oil coolers TWO

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure 2 M.E. (Diesel) Daily service tank aft

2 M.E. purified fuel oil (inboard P & S.A. 1st platform). One boiler oil daily tank, aft boiler 1st platform. One auxiliary daily tank aft inboard 1st platform.

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																
	SUCTION									DELIVERY							
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cool- ing	Sea	Feed Tanks	Lub. Oil	Oil water sep.	Boiler Feed	Salt Water Cool- ing	Fresh Water Cool- ing	Oil Fuel Tanks	Fire Main	Lub. Oil	Piston Cool- ing	Oil water sep.
All electric motor driven																	
Bilge & Fire (Piston Pump) X		X				X			X					X			X
Engine room(PS)Lower. 75T/HR																	
Bilge & Fire (Centrifugal) X						X			X					X			X
Engine room(PS)Lower. 65T/HR																	
Bilge & Ballast(Centrifugal) X			X	X		X							X				X
Eng. room (PS)Lower 150T/HR (Emergency)																	
S.W. Cooling Pumps 405 tons/HR		X				X					X	X					
Eng. room lower outbd & inbd																	
S.W. Cooling Pumps (Generator)					X	X					X	X					
Eng. room (SS) Lower Engs)																	
M.E. Lub. oil Pumps								X							X	X	
Eng. room Lower (P.F & P.A)																	
Diesel Oil Transfer ER (PSA)				X									X				
Eng. room (PSA) Lower																	
Aux. Boiler Feed Pumps							X			X							
B.R. (P.S.A)																	
Fuel Oil Transfer				X									X				
Eng. room lower (SSA)																	
Fuel valve F.W. Circ.					X							X					
Eng. room lower (PSF)																	

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 1 @ 80 mm (P&S) Nos. 1, 2, 3 & 4 Holds. 1 @ 125 mm No. 5 hold

C. DAM (frs 148/9) 1 @ 65 mm. Aft ER C DAM 2 @ 80 mm. Aft ER (db) C.DAM @ CL. 1 @ 80 mm.

No. and size connected to main bilge line in main engine room 3 @ 80 mm. In tunnel 1 @ 80 mm.

In aux. engine room Size and position of direct bilge suction in machinery spaces 1 @ 150 mm

(P & S) Aft Size and position of emergency bilge suction in machinery spaces 1 @ 300 mm (PS)

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 including special requirements for ships carrying petroleum in bulk cargo or oil or classed for navigation in ice? (Strike out words not applicable).

STEAM & OIL ENGINE AUXILIARIES

Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Lower ER Stard. Fwd. Diesel L 5 VEBXZ	Inbd.	Ruston and Hornsey.	Not F.E 1800	Electric Generator 335 KW
Lower ER Stard. Fwd Diesel L 5 VEBXZ	Outbd.		Not F.E 1800	Electric Generator 335 KW
Lower ER Stard Aft Diesel L 5 VCBX7			Not F.E 1783	Electric Generator 158 KW
	1 cyl	Burned	Paris 1958	Comp?
	2 cyl	Bukh	Gen. 6/7/61	Super.

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 Generator at 250 KW

Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of donkey boilers burning oil fuel One W.P. 85 lbs Type Spanner Swirlyflow

Position Lower Engine (P.S.A.) Room economisers

Is a superheater fitted? No Are these boilers also heated by exhaust gas? No No. of donkey boilers heated by exhaust gas only? One W.P. 6 Kgs/cm²

Type Lamont Position in funnel 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 in conjunction with O.F boiler

Port and No. of report on donkey boilers NTS No. 870 - Spanner

PAR No. 40 - Lamont Econ^r Is steam essential for operation of the ship at sea? Yes Are any steam pipes over 3 ins. bore? Yes If so, what is their material? S.D. Steel

For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes No. of oil burning pressure units One No. of steam condensers One No. of Evaporators One

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) Electric hydraulic. Two 20 HP motors

Lawrence Scott, 380 V. 34 Amps. (Nos M3 18507/8), Driving two Hele Show pumps (Nos K 12399 & K 12400) and Telomotor made by Messrs John Hastie & Co. Ltd., Steering gear control from aft docking bridge

provided by wheel, rocks and gears. Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements One Kidde CO₂ Multijet fire extinguishing system 30 jets ER, 4 jets BR. Two electric motor driven fire pumps in ER (indep) 75 & 65 T/hr connected to fire main in ER & BR with 7 hydrants. Diesel driven fire pump (emergency) in aft tunnel recess connected to fire main, 1-10 G froth portable extinguisher in ER. Remote controls ER fans & blowers, etc.

Has the spare gear required by the Rules been supplied? Yes Has all the machinery been tried under full working conditions and found satisfactory? Date and duration of full power sea trials of main engines 301.62 hrs 7-6 Kgs & 4-2 Kgs CO₂ extinguishers

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

No

The foregoing description of the main engine and installation is correct and the particulars are as approved for tonnage by Lloyd's Register of Shipping.

CHANTIER de NORMANDIE
GRAND-QUEVILLY (S.-M^{me})

Lloyd's Register
Foundation

Builder

0046 12

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 has been installed in the ship in accordance with the Rules, approved plans and Secretary's letters, tested under working conditions and found satisfactory.
This machine^{ry} is eligible, in my opinion, to be classed ~~L.M.C.~~ L.M.C., 1.62 T.S.(C.L) 1.62 & A.B.S. 1.62

Main engine not to be operated continuously between 102.5 rpm and 105.5 rpm (See N.T.S. Surveyor's letter to Head Office dated 17.4.62).

see last visit

[Signature]
Engineer Surveyor to Lloyd's Register of Shipping.

P.F. Chesters
For J. Grandison, J.S. Cook and Self.

PARTICULARS OF IDENTIFICATION MARKS (Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS PLEASE SEE NANTES REPORT No. 869

CRANKSHAFT OR ROTORSHAFT PLEASE SEE NANTES REPORT No. 869

FLYWHEEL SHAFT

THRUSTSHAFT

GEARING

INTERMEDIATE SHAFTS PAR. 919, 920, 929, 930, 931, 932.

SCREW AND TUBE SHAFTS PAR. 933 (fitted) PAR. 876 (Spare)

PROPELLERS MSL 1914 MSL 1829

OTHER IMPORTANT ITEMS PLEASE SEE NANTES REPORT No. 869

Is the installation a duplicate of a previous case? No

If so, state name of vessel

Date of approval of plans for crankshaft 10.2.60

Straight shafting 2.6.60

Gearing None

Clutch None

Separate oil fuel tanks 26.4.1961

Pumping arrangements 2.6.1960

Oil fuel arrangements 4.7.1960

Cargo oil pumping arrangements None

Air receivers See Nantes Report 869

Donkey boilers See Nantes Report

Dates of examination of principal parts:—

Fitting of stern tube 28.5.1961

Fitting of propeller 4.10.61

Completion of sea connections 11.12.61

Alignment of crank shaft in main bearings 14.11.19

Engine chocks & bolts 23.10.61

Alignment of gearing None

Alignment of straight shafting 29.12.61

Testing of pumping arrangements 26.12

Oil fuel lines 28.12.61

Donkey boiler supports 16.11.61

Steering machinery 3.1.1962

Windlass 3.1.1962

Date of Committee FRIDAY 20 JUL 1962

Special Survey Fee

Decision

+ L M C E S

A B S

T S (C L)

S P S

2.62

(INSTALLATION MACHINERY) N.F. 4,380

Expenses

N.F. 6,45

Date when A/c rendered

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