

Rpt. 4a.

REPORT ON STEAM TURBINE MACHINERY. 14 DEC 1936

Received at London Office

Date of writing Report 9th Dec. 1936 When handed in at Local Office

Port of BREMEN

No. in Survey held at BREMEN &amp; WESERMÜNDE

Date, First Survey 4th April 1936

Last Survey 23rd Nov. 1936

Reg. Book.

68579 on the STEEL SC. TRAWLER NORTHERN DUKE

(Number of Visits 15)

Tons { Gross 655  
Net 243

Built at WESERMÜNDE

By whom built DESCHIMAG, WERK: SEEBECK Yard No. 539 When built 1936

Engines made at BREMEN

By whom made DESCHIMAG, WERK: A.G. WESER Engine No. D.T. 825 When made 1936

Boiler made at WESERMÜNDE

By whom made DESCHIMAG, WERK: SEEBECK Boiler No. 760 When made 1936

Shaft Horse Power at Full Power 313

Owners MAC LINE LTD.

Port belonging to LONDON

Nom. Horse Power as per Rule 167

Is Refrigerating Machinery fitted for cargo purposes no

Is Electric Light fitted yes

Trade for which Vessel is intended FISHING

## STEAM TURBINE ENGINES, &amp;c.—Description of Engines L.P. TURBINE, DOUBLE REDUCTION GEARED, WITH HYDRAULIC COUPLING

No. of Turbines Ahead 1 Direct coupled, single reduction geared to 1 propelling shafts. No. of primary pinions to each set of reduction gearing 1

direct coupled to { Alternating Current Generator phase periods per second } rated Kilowatts Volts at revolutions per minute;

for supplying power for driving Propelling Motors, Type

rated Kilowatts Volts at revolutions per minute. Direct coupled, single or double reduction geared to propelling shafts.

TURBINE  
BLADING.

	H. P.			I. P.			L. P.			ASTERN.		
	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.	HEIGHT OF BLADES.	DIAMETER AT TIP.	NO. OF ROWS.
1ST EXPANSION							35 2	470 2	1			
2ND							49	498	1			
3RD							63	526	1			
4TH							77	554	1			
5TH							94	588	1			
6TH							112	624	1			
7TH												
8TH												
9TH												
10TH												
11TH												
12TH												

Shaft Horse Power at each turbine { H.P. -  
I.P. -  
L.P. 313 } Revolutions per minute, at full power, of each Turbine Shaft { H.P. -  
I.P. -  
L.P. 6066 } 1st reduction wheel 700/675  
main shaft 116Rotor Shaft diameter at journals { H.P. -  
I.P. -  
L.P. 100 2 } Pitch Circle Diameter { 1st pinion 124.28 2 1st reduction wheel 1077.00 2  
2nd pinion 202.52 main wheel 1178.32 } Width of Face { 1st reduction wheel 110 2  
main wheel 340 2 }Distance between centres of pinion and wheel faces and the centre of the adjacent bearings { 1st pinion 112 2 1st reduction wheel -  
2nd pinion 269 2 585 2 main wheel 380 2 = 250 2 }Flexible Pinion Shafts, diameter { 1st -  
2nd - } Pinion Shafts, diameter at bearings { External 1st 100 2 180 2 410 2  
Internal 1st - 2nd - } diameter at bottom of pinion teeth { 1st 114.57 2  
2nd 192.96 2 }Wheel Shafts, diameter at bearings { 1st 410 2  
main 420 2 } diameter at wheel shroud, { 1st -  
main - } Generator Shaft, diameter at bearings  
Propelling Motor Shaft, diameter at bearingsIntermediate Shafts, diameter as per rule -  
as fitted - Thrust Shaft, diameter at collars as per rule 217 2  
as fitted 220 2Tube Shaft, diameter as per rule -  
as fitted - Screw Shaft, diameter as per rule -  
as fitted - Is the { tube } shaft fitted with a continuous liner {  
screw }Bronze Liners, thickness in way of bushes as per rule -  
as fitted - Thickness between bushes as per rule -  
as fitted - Is the after end of the liner made watertight in the

propeller boss. If the liner is in more than one length are the junctions made by fusion through the whole thickness of the liner

If the liner does not fit tightly at the part between the bearings in the stern tube, is the space charged with a plastic material insoluble in water and non-corrosive

If two liners are fitted, is the shaft lapped or protected between the liners Is an approved Oil Gland or other appliance fitted at the after end of the tube

shaft If so, state type Length of Bearing in Stern Bush next to and supporting propeller

Propeller, diameter Pitch No. of Blades State whether Moveable Total Developed Surface square feet.

If Single Screw, are arrangements made so that steam can be led direct to the L.P. Turbine Can the H.P. or I.P. Turbine exhaust direct to the

Condenser No. of Turbines fitted with astern wheels Feed Pumps { No. and size  
How driven }Pumps connected to the Main Bilge Line { No. and size  
How driven }

Ballast Pumps, No. and size Lubricating Oil Pumps, including Spare Pump, No. and size

Are two independent means arranged for circulating water through the Oil Cooler Suctions, connected to both Main Bilge Pumps and Auxiliary Bilge

Pumps, No. and size:—In Engine and Boiler Room In Pump Room

In Holds, &amp;c.

Main Water Circulating Pump Direct Bilge Suctions, No. and size Independent Power Pump Direct Suctions to the Engine Room

Bilges, No. and size Are all the Bilge Suction pipes in Holds and Tunnel Well fitted with strum-boxes

Are the Bilge Suctions in the Machinery Space led from easily accessible mud-boxes, placed above the level of the working floor, with straight tail pipes to the bilges

Are all Sea Connections fitted direct on the skin of the ship Are they fitted with Valves or Cocks

Are they fixed sufficiently high on the ship's side to be seen without lifting the stokehold plates Are the Overboard Discharges above or below the deep water line

Are they each fitted with a Discharge Valve always accessible on the plating of the vessel Are the Blow Off Cocks fitted with a spigot and brass covering plate

What pipes pass through the bunkers How are they protected

What pipes pass through the deep tanks Have they been tested as per rule

Are all Pipes, Cocks, Valves, and Pumps in connection with the machinery and all boiler mountings accessible at all times

Is the arrangement of valves and their connections such as to prevent the possibility of water passing from the sea or from water tanks into the cargo or machinery spaces, or from one

compartment to another Is the Shaft Tunnel watertight Is it fitted with a watertight door worked from

003994-004002-0254



BOILERS, &c.—(Letter for record — ) Total Heating Surface of Boilers —

Is Forced Draft fitted — No. and Description of Boilers — Working Pressure —

Is a Report on Main Boilers now forwarded? —

Is { a Donkey } Boiler fitted? —  
 { an Auxiliary }

If so, is a report now forwarded? —

Is the donkey boiler intended to be used for domestic purposes only —

Plans. Are approved plans forwarded herewith for <sup>TURBINE</sup>Shafting 18.11.35 Main Boilers — Auxiliary Boilers — Donkey Boilers —  
 (If not state date of approval)

Superheaters — General Pumping Arrangements — Oil Fuel Burning Arrangements —

SPARE GEAR.

Has the spare gear required by the Rules been supplied *yes* ✓

State the principal additional spare gear supplied

*One compl. set of spare aft turbine bearing brass. 1 spring for quick closing governor*  
*2<sup>nd</sup> pinion " " 1 " " main steering & oil pressure valve*  
*10 pads & bolts for turbine thrust 8 pipes for oil cooler*  
*8 " " 2<sup>nd</sup> pinion thrust 3 glasses for thermometer*  
*12 " " Main Turbine Bearing 1 set of washers for quick closing regulator*  
*2 bushes for hydraulic clutch*

Deutsche Schiff- und Maschinenbau  
 Aktiengesellschaft

Work: Act. Ges. Weser

*Bremen 7.12.1936 J. H. Kämpf* Manufacturer.

The foregoing is a correct description,

1936  
 Dates of Survey while building { During progress of work in shops — April 4, 11 May 15, 19 June 5, 19, 27, 28 July 6, 13, 28.  
 { During erection on board vessel — Nov. 6, 10, 17, 23  
 Total No. of visits 15

Dates of Examination of principal parts—Casings 19/6, 6/7, 28/7, 36 Rotors 15/4, 27/6, 28/7, 36 Blading 27/6, 28/7, 36 Gearing 6/7, 13/7, 29/7, 36

THRUST  
 Wheel shaft 15/4, 28, 7, 36 Thrust shaft — Intermediate shafts — Tube shaft — Screw shaft —  
 Propeller — Stern tube — Engine and boiler seatings — Engine holding down bolts 17.11.36

Completion of fitting sea connections — Completion of pumping arrangements — Boilers fixed — Engines tried under steam 23.11.36

Main boiler safety valves adjusted — Thickness of adjusting washers —

Rotor shaft, Material and tensile strength *T. M. Steel 50.8 kg/mm<sup>2</sup>*

Identification Mark *LLOYD'S 596 G.B. 28.7.36*

Flexible Pinion Shaft, Material and tensile strength —

Identification Mark

2<sup>nd</sup> Pinion shaft, Material and tensile strength *Pilicon Mangan Steel 79.7 kg/mm<sup>2</sup>*

Identification Mark *LLOYD'S 10814 J.L. 18.12.35*

1st Reduction Wheel Shaft, Material and tensile strength

Identification Mark

THRUST  
 Wheel shaft, Material *T. M. Steel* Identification Mark *LLOYD'S 594 G.B. 28.7.36*

Thrust shaft, Material — Identification Mark —

Intermediate shafts, Material — Identification Marks —

Tube shaft, Material — Identification Marks —

Screw shaft, Material — Identification Marks —

Steam Pipes, Material — Test pressure —

Date of test —

Is an installation fitted for burning oil fuel —

Is the flash point of the oil to be used over 150°F. —

Have the requirements of the Rules for the use of oil as fuel been complied with —

Is the vessel (not being an oil tanker) fitted for carrying oil as cargo —

If so, have the requirements of the Rules been complied with —

If the notation for ice strengthening is desired, state whether the requirements in this respect have been complied with —

Is this machinery a duplicate of a previous case *yes* If so, state name of vessel *NORTHERN PRIDE*

General Remarks (State quality of workmanship, opinions as to class, &c.) *This L.P. Turbine & Gear with hydraulic clutch are built under Special Survey in accordance with the approved plans, the Surveyor's letters, and in conformity with the requirements of the Rules. Materials and workmanship are of good quality.*

*During the vessel's trial trip all parts have been tried under full working and maneuvering condition and found satisfactory in all respects.*

The amount of Entry Fee ... £ ...  
 Special ... £ ...  
 Donkey Boiler Fee ... £ ...  
 Travelling Expenses (if any) £ ...

When applied for,

When received,

*J. H. Kämpf*

*A. Carstensen*

Engineer Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 18 DEC 1936

Assigned

*See minute on F.E. 211-*



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 Foundation