

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

2 SEP 1950

Date of writing Report 15th August 1950

When handed in at Local Office

5.9.1950

Port of

GLASGOW

No. in Survey held at

GREENOCK

Date, First Survey

16th MARCH

Last Survey

13th JULY

1950

Reg. Book.

(No. of Visits)

9

36839 on the

M.V. 'ERLING BORTHEN'

Tons

Gross 907.4

Net

Built at PORT GLASGOW

By whom built

W^m HAMILTON & CO^{LD}

Yard No.

482

When built

1950

Owners

HARRY BORTHEN & CO^{LD} A/S

Port belonging to

OSLO

Installation fitted by

MESSRS SUNDERLAND FORGE & ENGINEERING CO^{LD}

When fitted

1950

Is vessel equipped for carrying Petroleum in bulk

YES

Is vessel equipped with D.F.

YES

E.S.D.

YES

Gy.C.

YES

Sub.Sig.

YES

Radar

YES

Plans, have they been submitted and approved

YES

System of Distribution

TWO WIRE

Voltage of Lighting

110

Heating

110

Power

110

D.C. or A.C., Lighting

D.C.

Power

D.C.

If A.C. state frequency

YES

Prime Movers, has the governing been found as per Rule when full load is thrown on and off

YES

Are turbine emergency governors fitted

with a trip switch

YES

Generators, are they compound wound

YES

and level compounded under working conditions

YES

if not compound wound state distance between generators

YES

and from switchboard

YES

Are the generators arranged to run

in parallel

YES

are shunt field regulators provided

YES

Is the compound winding connected to the negative or positive pole

NEGATIVE

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing

YES

Have certificates of

test for machines under 100 kw. been supplied

YES

and the results found as per Rule

YES

Position of Generators

PORT SIDE OF ENGINE ROOM

is the ventilation in way of generators satisfactory

YES

are they clear of inflammable material and protected from mechanical injury and

damage from water, steam and oil

YES

Switchboards, where are main switchboards placed

ADJACENT TO STEAM

GENERATORS

are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water,

steam and oil

YES

what insulation is used for the panels

SINDANYO

if of synthetic insulating

material is it an Approved Type

YES

if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as

per Rule

YES

Is the construction as per Rule, including locking of screws and nuts

YES

Description of Main Switchgear

for each generator and arrangement of equaliser switches

400 AMP TRIPLE POLE CIRCUIT BREAKERS FITTED

WITH OVERLOAD AND REVERSE CURRENT TRIPS

and the switch and fuse gear (or circuit breakers) for each outgoing circuit

DOUBLE POLE KNIFE PATTERN SWITCHES

WITH FUSES

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule

YES

Instruments on main switchboard

FOUR

ammeters

FOUR

voltmeters

YES

synchronising devices

YES

For compound machines in parallel are the ammeters and reversed current

protection devices connected on the pole opposite to the equaliser connection

YES

Earth Testing, state means provided

EARTH LAMPS

Switches, Circuit Breakers and Fuses, are they as per Rule

YES

are the fuses an Approved Type

YES

make of fuses

SIEMENS 'ZED'

are all fuses labelled

YES

If circuit breakers are provided for the generators, at what

overload do they operate

150% FULL LOAD

and at what current do the reversed current protective devices operate

10% - 15% FULL LOAD

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule

YES

Cables, are they insulated and protected as per Rule

YES

if otherwise than as per Rule are they of an Approved Type

YES

state maximum fall of pressure between bus bars and any point under maximum load

4.8 VOLTS

are the ends of all cables having a sectional

area of 0.01 square inch and above provided with soldering sockets

YES

Are all paper insulated and varnished cambric insulated

cables sealed at the ends

YES

Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil,

high temperatures or risk of mechanical damage

YES

are any cables laid under machines or floorplates

No

if so, are they

adequately protected

YES

Are cables in machinery spaces, galleys, laundries, etc., lead covered

YES

or run in conduit

YES

or of the "HR" type

YES

State how the cables are supported or protected

MANS. - L.C.A.B. CABLES CLIPPED

TO STEELWORK. MACHINERY SPACE - L.C.A.B. CABLES CLIPPED TO TRAY ACCOMMODATION. L.C.

CABLES CLIPPED TO WOODWORK.

Are all lead sheaths, armouring and conduits effectually bonded and earthed

YES

Are all cables passing through decks and watertight

bulkheads provided with deck tubes or watertight glands

YES

where unarmoured cables pass through beams, etc., are the holes

effectively bushed

YES

Refrigerated chambers, are the cables and fittings as per Rule

YES

Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule.....YES..... Emergency Supply, state position

Navigation Lamps, are they separately wired YES controlled by separate double pole switches and fuses. YES Are the switches and fuses in a position accessible only to the officers on watch YES, is an automatic indicator fitted YES. Is an alternative supply provided YES

Secondary Batteries, are they constructed and fitted as per Rule..... ✓, are they adequately ventilated..... ✓
state battery capacity in ampère hours..... ✓

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof..... **YES**

..... **YES**

Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present? NO
if so, how are they protected IN PUMPROOMS: LIGHTING FITTINGS IN SEPARATE COMPARTMENT. CENTRECASTLE SPACE. FLAREPROOF FITTINGS
and, where are the controlling switches fitted IN ACCOMMODATION SPACE Are all fittings suitably ventilated YES

Searchlight Lamps, No. of ✓, whether fixed or portable ✓, are they of the carbon arc or of the filament type ✓

Heating and Cooking, is the general construction as per Rule.....YES....., are the frames effectually earthed.....YES....., are heaters in the

accommodation of the convection type..... Yes Motors, are all motors constructed and installed as per Rule and placed in well-ventilated

Are motors coupled to oil fuel transfer and pressure pumps capable of being stopped from a position accessible in the event of fire in the pump.

compartment..... ✓ Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing..... ✓

Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule.....YES

Control Gear and Resistances, are they constructed and fitted as per Rule.....YES..... Lightning Conductors, where required are they fitted as per Rule.....✓..... Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with.....✓.....

complied with. YES, are all fuses of an Approved Cartridge Type. YES, make of fuse. SIEMENS 'ZED'. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. YES. Are the cables lead covered as per Rule. YES.

E.S.D., if fitted state make HUGHES M.S. 21 location of transmitter FRAME SPACE 39-40 and receiver FRAME SPACE 37-38 YES

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and suitably stored in dry situations.....YES

Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory.....YES

PARTICULARS OF GENERATING PLANT.

PARTICULARS OF GENERATOR.							PRIME MOVER.	
DESCRIPTION OF GENERATOR.	No. of	MAKER.	RATED AT				TYPE.	MAKER.
			Kilowatts per Generator.	Volts.	Ampères.	Revs. per Min.		
MAIN	3	SUNDERLAND FORGE & CO.	40	110	364	640	STEAM.	SUNDERLAND FORGE & CO.
	1	SUNDERLAND FORGE & CO.	40	110	364	800	DIESEL	GLENIFFER.
EMERGENCY ...								
ROTARY								
TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING
		No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	IN AMPERES. In the Circuit.	Rule.			
MAIN GENERATOR	40	2	19/083	363 ✓	404	104	V.C.	L.C.F.B.
" " EQUALISER	1	1	19/083	-	202	52	V.C.	L.C.F.B.
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES (to Section Boards, Distribution Fuse Boards, etc.).

[illegible]

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
WIRELESS	1	7/.064	15	80	132	V.C.	L.C.
NAVIGATION	1	7/.064	30	80	140	V.C.	L.C.
BRIDGE DECK STE'D LIGHTING D.B.	1	7/.064	15	31	52	RUBBER	L.C.
LOWER BRIDGE DECK LIGHTING D.B.	1	7/.064	20	31	108	RUBBER	L.C.
POOP DECK PORT LIGHTING D.B.	1	7/.064	15	31	138	RUBBER	L.C.
AFT LIGHTING D.B.	1	7/.064	18	31	294	RUBBER	L.C.
ENGINE ROOM LIGHTING D.B. TOP STE'D.	1	7/.064	9	31	822	RUBBER	L.C.A.B.
ENGINE ROOM LIGHTING D.B. BOTTOM STE'D.	1	7/.064	11	31	228	RUBBER	L.C.A.B.
HEATER D.B.	1	7/.064	182	31	108	RUBBER	L.C.
GALLEY D.B.	1	7/.064	35	80	102	V.C.	L.C.A.B.
ENGINE ROOM AUX. D.B. N° 2.	1	19/.064	86	143	180	V.C.	L.C.A.B.
ENGINE ROOM AUX. D.B. N° 3.	1	7/.064	612	80	108	V.C.	L.C.A.B.
REFRIG. D.B.	1	7/.064	57	80	240	V.C.	L.C.A.B.
LAUNDRY POWER D.B.	1	7/.064	71	80	306	V.C.	L.C.A.B.
SEARCHLIGHT (WIRING ONLY)	1	19/.064	-	143	440	V.C.	L.C.A.B.
GYRO COMPASS.	1	7/.029	6	15	90	RUBBER	L.C.
RADAR.	1	7/.064	20	80	90	V.C.	L.C.
GALLEY RANGE	1	19/.064	124	143	246	V.C.	L.C.A.B.
WATER BOILERS. (5 k.w.)	1	7/.064	454	80	104	V.C.	L.C.
MID. CALORIFIER	1	7/.064	682	80	140	V.C.	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.							
STEERING GEAR.	1	25	1	19.083	190✓	202	256	V.C.	L.C.A.B.
DOMESTIC REFRIG.	1	5	1	7.064	57✓	80	96	V.C.	L.C.
PURIFIERS.	3	3.5	1	7.064	28.7✓	80	48	V.C.	L.C.A.B.
SANITARY PUMPS.	2	3	1	7.044	25✓	31	420	RUBBER	L.C.A.B.
ENGINE ROOM VENT FANS.	2	2.75	1	7.044	25✓	31	96	RUBBER	L.C.A.B.
MID. VENT FANS.	2	1.45	1	7.044	13.5✓	31	152	RUBBER	L.C.

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.

All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.

The foregoing is a correct description.

Per Pro. THE SUNDERLAND FORGE & ENGINEERING CO. LTD.

Electrical Contractors.

Date 1st September 1950.

COMPASSES.

Have the compasses been adjusted under working conditions.

YES

For William Hamilton & Co., Limited,

Builder's Signature.

Date 5th Sep 1950.

Have the foregoing descriptions and schedules been verified and found correct.

YES

Is this installation a duplicate of a previous case. No If so, state name of vessel.

Plans. Are approved plans forwarded herewith. No If not, state date of approval.

29th APRIL 1950

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith.

YES

General Remarks. (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.)

The electrical installation of this vessel has been fitted on board under Special Survey, tested under working conditions and found satisfactory. The quality of materials and workmanship is good.

Notes sent 20/9/50

Total Capacity of Generators 160 Kilowatts.

The amount of Fee ...

£ 64 : 0

When applied for,

at £ 19

When received,

at £ 19

Travelling Expenses (if any) £

1 : 5

J. M. Gardiner.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute.

GLASGOW

6 SEP 1950

Assigned

See F.E. Machy Rpt Gth 24194



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Foundation