No. 14459

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 7 AUG 1931

Reporting Report 31. 7. 1931 When handed in at Local Office 3. 8. 1931 Port of Middlesbrough

Survey held at Haverton Hill on Tees Date, First Survey 27 May 1931 Last Survey 16. 7. 1931.
(Number of Visits 10)

Book. on the T.S.S. Vestfold Tons Gross 14360. Net 8127.

By whom built Furness Shipbuilding Co Ltd Yard No. 189 When built 1931

Haverton Hill on Tees Port belonging to Sandefjord

Hvalfangeraktieskapet Vestfold Contract No. 189 When fitted 1931

Light Installation fitted by Furness Shipbuilding Co Ltd

Vessel fitted for carrying Petroleum in bulk yes

System of Distribution Double Wire

Voltage of supply for Lighting 110 volts, **Heating** 110 volts, **Power** 110 volts.

For Alternating Current, Lighting Direct **Power** Direct

Alternating current system, state frequency of periods per second -

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off yes

Generators, do they comply with the requirements regarding rating yes, are they compound wound yes

Are they over compounded 5 per cent. level, if not compound wound state distance between each generator -

Where more than one generator is fitted are they arranged to run in parallel yes, is an adjustable regulating resistance fitted in connection with each shunt field yes

Are the terminals accessible, clearly marked, and furnished with sockets yes, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched yes Are the lubricating arrangements of the generators as per Rule yes,

Position of Generators Starboard side of Engine Room

Is the ventilation in way of the generators satisfactory yes, are they clear of all inflammable material yes

Are they situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators - and -, are the generators protected from mechanical injury and damage from water, steam or oil yes,

Do their axes of rotation fore and aft yes

Fastening, are the bedplates and frames of the generating plant efficiently earthed yes are the prime movers and respective generators in metallic contact yes

Switch Boards, where placed Starboard side of Engine Room

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard -,

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes yes -, are they protected from mechanical injury and damage from water, steam or oil yes, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards - and -,

Are they constructed wholly of durable, non-ignitable non-absorbent materials yes, is all insulation of high dielectric strength and of permanently high insulation resistance yes, if semi-insulating material is used, are all conducting parts insulated from the slab of mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework -,

Is the frame effectively earthed yes. Are the fittings as per Rule regarding :— spacing or shielding of live parts yes, accessibility of all parts yes, absence of fuses on back of board yes, proportion of omnibus bars yes, individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yes

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches Triple pole circuit breaker for each generator. Double pole switch & fuses for each outgoing circuit

Instruments on main switchboard 3 ammeters 2 voltmeters - synchronising device for paralleling purposes.

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system 2. 10 watt lamps in series across bus-bars & middle point earthed

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yes

Joint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule yes

Cables; *Single, twin, concentric, or multicore* Single & Twin *are the cables insulated and protected as per Tables* IV *or* V *of the Rules* IV

Fall of Pressure, *state maximum between bus bars and any point of the installation under maximum load* 4.7 V.

Cable Sockets and other connections, *are the ends of all cables having a sectional area of* 0·04 *square inch and above provided with soldering sockets* yes

Paper Insulated Cables. *If cables are paper covered, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed in insulating compound* -

Cable Runs, *are the cables fixed as far as possible in accessible positions not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage* yes

Support and Protection of Cables, *state how the cables are supported and protected* Lead covered & armoured cables are supported by means of galv iron clips. Lead covered cables supported by means of brass clips & screws. *If cables are run in wood casings, are the casings and caps secured by screws* -, *are the cap screws of brass* -, *are the cables run in separate grooves* -. *If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table* VIII yes

Refrigerated Chambers, *if lights are fitted, are the cables and fittings in accordance with the special requirements* yes

Joints in Cables, *state if any, and how made, insulated, and protected* Porcelain connections in W/T bases

Watertight Glands and Deck Tubes, *are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands* yes

Bushes in Beams and Non-watertight Partitions, *where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed* yes *state the material of which the bushes are made* Lead

Earthing Connections, *state what earthing connections are fitted and their respective sectional areas* earthing connections having sectional area 50% of sect area of main cables

Alternative Lighting, *are the groups of lights in the propelling machinery space arranged as per Rule* yes, *are their connections made as per Rule* yes

Emergency Supply, *state position and method of control of the emergency supply and how the generator is driven* -

Navigation Lamps, *are these separately wired* yes, *controlled by separate switch and separate fuses* yes, *are the fuses double pole* yes *are the switches and fuses grouped in a position accessible only to the officers on watch* yes *has each navigation lamp an automatic indicator as per Rule* yes

Secondary Batteries, *are they constructed and fitted as per Rule* -

Fittings, *are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight* yes *are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected* -

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected In Pump Rooms special gastight fittings in H.G. galv iron pipes, *how are the cables led* *where are the controlling switches situated* Outside Pump Room Entrances

Searchlight Lamps, No. of 2, *whether fixed or portable* fixed, *are their fittings as per Rule* yes

Arc Lamps, *other than searchlight lamps, No. of* -, *are their live parts insulated from the frame or case* -, *are their fittings as per Rule* -

Motors, *are their working parts readily accessible* yes, *are the coils self-contained and readily removable for replacement* yes *are the brushes, brush holders, terminals and lubricating arrangements as per Rule* yes, *are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material* yes *are they protected from mechanical injury and damage from water, steam or oil* yes *are their axes of rotation fore and aft* yes *if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type*, *if not of this type, state distance of the combustible material horizontally or vertically above the motors* - *and* -

Control Gear and Resistances, *are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule* yes

Lightning Conductors, *where lightning conductors are required, are these fitted as per Rule* yes

Ships carrying Oil having a Flash Point less than 150° F. *Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings* yes *If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office* yes

No. ...

LIGHTING CONDUCTORS

of Middlesbrough — Continuation of Report No. ... dated 31. 7. 31. on the s.s. "VESTFOLD"

DESCRIPTION	CONDUCTORS No	CONDUCTORS AREA	COMPOSITION OF STRAND No	COMPOSITION OF STRAND DIAMETER	TOTAL MAXIMUM CURRENT AMPERES W. CIRCUIT	TOTAL MAXIMUM CURRENT AMPERES RULE	APPROX LENGTH LEAD & RETURN FEET	INSULATED WITH	HOW PROTECTED
Section Box									
"A" Dist Box	1	·0100	7	·044	20·8	38	300	V.C	L.C.A.&B.
"C" " "	1	·0100	7	·044	27·0	38	300	"	" " "
"E" " "	1	·0100	7	·044	37·0	38	10	"	" " "
Section Box									
"H" Dist. Box	1	·0100	7	·044	21·0	38	150	V. C	LC A & B
"G" " "	1	·0100	7	·044	19·8	38	150	"	" " "
Section Box									
"L & M" Dist Boxes	1	·0100	7	·044	12·0	38	200	V. C	LCA & B
"P" " "	1	·0100	7	·044	12·1	38	100	"	" " "
"R" " "	1	·0100	7	·044	11·8	38	100	"	" " "
"W" " "	1	·0100	7	·044	23·5	38	60	"	" " "
Searchlights (2) EACH	1	·0100	7	·044	18·0	38	200	"	" " "
Section Box									
"N" Dist Box	1	·0100	7	·044	13·8	38	100	V. C	LCA&B
"S" " "	1	·0100	7	·044	8·0	38	70	"	" " "
"T" " "	1	·0100	7	·044	24·5	38	8	"	" " "
"E" Section Box									
"J" Dist Box	1	·0100	7	·044	13·6	38	160	V. C	L.C.A&B
"K" " "	1	·0100	7	·044	17·2	38	140	"	" " "
"F" Section Box									
"D" Dist Box	1	·0100	7	·044	24·8	38·0	300	V.C	L.C.A&B.
"F" " "	1	·0100	7	·044	27·8	38·0	10	"	" " "
"I" " "	1	·0400	19	·052	30·8	94·0	700	"	" " "
"B" " "	1	·0100	7	·044	18·9	38·0	300	"	" " "
"D" Section Box									
Heating	1	·0100	7	·044	18	38·0	140	V.C	LC A&B
"	1	·0100	7	·044	9	38·0	140	V.C	" "
Vent. Fan	1	·0030	3	·036	9	12·0	100	V.I.R	" "
"K" Section Box									
Heating	1	·0030	3	·036	9	12·0	100	V.I.R	LC.A.&B.

ot. 9a.

MOTOR CONDUCTORS

rt of Middlesbrough. Continuation of Report No. dated 31.7.31 on the Se. VESTFOLD

DESCRIPTION	No of Motors	Conductors No Per Pole	Conductors Total Area	Composition of Strand No	Composition of Strand Diameter	Total Maximum Current Amperes In Circuit	Total Maximum Current Amperes Rule	Approx Length (Lead & Return) Feet	Insulated with	How Protected	
Evaporators	2 each	1	·0225	7	·064	50	68	140 100	V.C	LC A & B	
Eng Rm. Workshop	1	1	·0100	7	·044	32	38	60	"	"	"
Factory Workshop	1	1	·0400	19	·052	80	94	260	"	"	"
25" Fans	2 each	1	·0100	7	·044	35	38	230 80	"	"	"
30" Fans	2 Each	1	·0020	3	·029	3	7·8	80 120	V.I.R	"	"
Smithy Blower	1	1	·0045	7	·029	8	18·2	120	V.I.R	"	"
Male Oil Separators	9 each	1	·0100	7	·044	35	38	40	V.C	"	"
Disc Blower	1	1	·0020	3	·029	3	7·8	60	V.I.R	"	"
Wireless (mains)	+	1	·0225	7	·064	-	68	1100	V.C	"	"
Hot Press	-	1	·1000	19	·083	60	172	1100	V.C	"	"
Oven Blower	1	1	·0020	3	·029	4	7·8	80	V.I.R	"	"
Range Blower	1	1	·0020	3	·029	4	7·8	60	V.I.R	"	"
Coffee Mill	1	1	·0020	3	·029	3	7·8	12	V.I.R	"	"
Potato Peeler	1	1	·0020	3	·029	3	7·8	60	V.I.R	"	"
Hot Plate	1	1	·0030	3	·036	10	12·0	90	V.I.R	"	"
Refrig. (cable)	-	1	·0020	3	·029	-	7·8	90	V.I.R	"	"

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT Kilowatts.	Volts.	Ampères.	Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE, Fuel Used.	Flash Point of Fuel.
MAIN	1	75	110	682	500	BELLISS & MORCOM. STEAM. ENGINES	~~	~~
" AUXILIARY ...	2 EACH	50	110	455	500	" " " "		
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS. No. per Pole.	CONDUCTORS. Total Effective Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter.	TOTAL MAXIMUM CURRENT. AMPERES. In Circuit.	TOTAL MAXIMUM CURRENT. AMPERES. Rule.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
MAIN GENERATOR	1	·8500	127	·093	682	733	60	V.C	L.C. A.B.
EQUALISER CONNECTIONS ...	-	·4000	61	·093	-	417	30	"	" "
2 MAIN AUXILIARY GENERATORS..EACH	1	·5000	61	·103	455	486	50	"	" "
EQUALISER CONNECTIONS ~~EMERGENCY GENERATOR~~ ...	-	·2500	37	·093	-	309	25	"	" "
ROTARY TRANSFORMER { MOTOR ...									
ROTARY TRANSFORMER { GENERATOR...									
ENGINE ROOM...									
BOILER ROOM...									
AUXILIARY SWITCHBOARDS ...									
				See attached list					
ACCOMODATION									
WIRELESS									
SEARCHLIGHT									
MASTHEAD LIGHT									
SIDE LIGHTS									
COMPASS LIGHTS									
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS. No. Per Pole.	CONDUCTORS. Total Effective Area per Pole Sq. Ins.	COMPOSITION OF STRAND. No.	COMPOSITION OF STRAND. Diameter.	TOTAL MAXIMUM CURRENT. AMPERES. In Circuit.	TOTAL MAXIMUM CURRENT. AMPERES. Rule.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
BALLAST PUMP										
MAIN BILGE LINE PUMPS ...										
GENERAL SERVICE PUMP ...										
EMERGENCY BILGE PUMP ...										
SANITARY PUMP										
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS...										
AIR COMPRESSOR										
FRESH WATER PUMP				See attached list						
ENGINE TURNING GEAR... ...										
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...										
OIL FUEL TRANSFER PUMP ...										
WINDLASS										
WINCHES, FORWARD										
WINCHES, AFT										
STEERING GEAR—										
(a) MOTOR GENERATOR...										
(b) MAIN MOTOR										
WORKSHOP MOTOR										
VENTILATING FANS										

All Conductors are of annealed copper conforming to British Standard Specification No. 7.

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

P. J. Glover Electrical Engineer. Date 30th July 1931

for FURNESS SHIPBUILDING Co. LIMITED

COMPASSES.

Distance between electric generators or motors and standard compass 610'

Distance between electric generators or motors and steering compass 600

The nearest cables to the compasses are as follows:—

A cable carrying 1 *Ampères* 4 *feet from standard compass* 4 *feet from steering compass.*

A cable carrying - *Ampères* - *feet from standard compass* - *feet from steering compass.*

A cable carrying - *Ampères* - *feet from standard compass* - *feet from steering compass.*

Have the compasses been adjusted with and without the electric installation at work at full power yes

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted yes

The maximum deviation due to electric currents was found to be nil *degrees on* all *courses in the case of the standard compass, and* nil *degrees on* all *courses in the case of the steering compass.*

for FURNESS SHIPBUILDING CO. LIMITED.

J. McGovern Director *Builder's Signature.* Date 30th July 1931

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

General Remarks (State quality of workmanship, opinions as to class, &c.)

The materials and workmanship are good.

This electric installation has been fitted aboard under special survey and in accordance with the Rules and Approved Plan. It has been tested with satisfactory results under working conditions and is, in our opinion, suitable for a classed vessel.

It is submitted that this vessel is eligible for THE RECORD. Elec. Light

DG 17/8/31.

Total Capacity of Generators 175 · *Kilowatts.*

The amount of Fee ... ... £ 35 - 5 - 0. When applied for, ... 19.....

Travelling Expenses (if any) £ : : When received, 5 · 8 · 19 31

P. P. Main & L. C. Clayton. *Surveyor to Lloyd's Register of Shipping.*

Committee's Minute

Assigned Elec Lt.

1m,11,29.—Transfer.

(The Surveyors are requested not to write on or below the space for Committee's Minute.)