

Rpt. 13.

No. 8195

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

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Reg. Book.

40491 on the Hel Twin S. Motor vessel "GULDBORG."(Number of Visits 9)Tons { Gross 4731.71
Net 2864.97Built at OdenseBy whom built Odense Skibsvaerft Yard No. 36When built 1929-30Owners H. Oampskibsselskabet "Dannebrog"Port belonging to CopenhagenElectric Light Installation fitted by H. Helweg-Larsen, Copenhagen Contract No. -When fitted 1930Is the Vessel fitted for carrying Petroleum in bulk No.System of Distribution 2 conductors insulated systemPressure of supply for Lighting 220 volts, Heating - volts, Power 220 volts.Direct or Alternating Current, Lighting direct Power directIf 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 yesGenerators, do they comply with the requirements regarding rating yes, are they compound wound yesare they over compounded 5 per cent. yes, if not compound wound state distance between each generator -Where more than one ^{main} generator is fitted are they arranged to run in parallel yes, is an adjustable regulating resistance fitted in series with each shunt field yesAre all 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 yesPosition of Generators 3 main generators placed in motor room; emergency generator in a special compartmentis the ventilation in way of the generators satisfactory yes, are they clear of all inflammable material yesif 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 yesare their axes of rotation fore and aft yesEarthing, are the bedplates and frames of the generating plant efficiently earthed yes are the prime movers andtheir respective generators in metallic contact yesMain Switch Boards, where placed on a platform in the forward end of the motor 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 yesare they protected from mechanical injury and damage from water, steam or oil yes, if situated near unprotectedwoodwork 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 ofpermanently high insulation resistance yes, if semi-insulating material is used, are all conducting parts insulated from the slabwith mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework yesand is the frame effectively earthed yes Are the fittings as per Rule regarding:— spacing or shielding of live partsyes, accessibility of all parts yes, absence of fuses on back of board yes, proportion of omnibusbars yes, individual fuses to voltmeter, pilot or earth lamp yes, connections of switches yesMain Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches for each generator on 26pole circuit breakers with overload reversed current trips and equalizer switch as per Sub. 3. par. 3.A (f)for each outgoing circuit: on 26 pole linked switch and a fuse on each pole.Instruments on main switchboard 6 ammeters 3 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

1 set of earth lamps fitted; 1 voltmeter provided with 2 scales.Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules yesJoint Boxes Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule yes

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Cables: Single, twin, concentric, or multicore *single & twin* are the cables insulated and protected as per Tables IV ~~or V~~ of the Rules *yes*.

Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *C.S. Vetto*.

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 with 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, upstake 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 *armoured cables used, laid on steel plate and supported by gate clips; in holds protected by steel plate casings.*

If cables are run in wood casings, are the casings and caps secured by screws *yes*, are the cap screws of brass *yes*, are the cables run in separate grooves *yes*. 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 *No joints in cables.*

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 ~~armoured~~ 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 *yes*.

, are their connections made as per Rule *yes*.

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

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven *emergency supply delivered by a 4 kw. comp. wind generator stationed in a special compartment on upper deck and worked by a 2-cyl. 45 h. xing acting paraffin engine. The auxiliary switchboard for light is fitted in the same compartment and has a change-over switch for the emergency supply.*

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 *yes*.

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 *yes*.

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *yes*.

, how are the cables led

where are the controlling switches situated *yes*.

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

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

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 *yes*, if not of this type, state distance of the combustible material horizontally or vertically above the motors *yes* and *yes*.

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*.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN <i>1st</i>	2	66	220	300	400	2-cyl. Diesel oil engine	Diesel oil	above 150° F.
AUXILIARY <i>2nd</i>	1	33	220	150	400	1-cyl. " " " "	" " "	" " "
EMERGENCY	1	4	230	17.5	1500	2-cyl. oil engine	paraffin	ca. 120° F.
ROTARY TRANSFORMER	✓							

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Effective Area per Pole Sq. mm.	No.	Diameter.	In Circuit.	Rule.				
MAIN GENERATOR <i>1st</i>	2	2 x 120	37	2.03	300	354	114-140	vulcanized	lead covered	
EQUALISER CONNECTIONS	1	120	37	2.03	177	177	57-70	india	and	
AUXILIARY GENERATOR <i>2nd</i>	1	120	37	2.03	150	177	136	rubber	steel wire	
EMERGENCY GENERATOR	1	4	7	0.85	18	22.1	16			armoured.
ROTARY TRANSFORMER MOTOR GENERATOR										
ENGINE ROOM	1	6	7	1.05	81	28.6	150	"	"	
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
FOR LIGHT	1	16	7	1.7	30	48.7	150	"	"	
ACCOMMODATION										
AFT	1	2	1	1.6	3	12.4	312	"	"	
SALOON	1	6	7	1.05	76	28.6	305	"	"	
NAVIGATION LIGHT	1	1.8	1	1.38	1	10	330	"	"	
WIRELESS	1	10	7	1.35	15	38	620	"	"	
SEARCHLIGHT										
MASTHEAD LIGHT	1	1.5	1	1.38	14	10	490 306	"	"	
SIDE LIGHTS	1	1.5	1	1.38	14	10	70	"	"	
COMPASS LIGHTS	1	1.5	1	1.38	14	10	15	"	"	
POOP LIGHTS	1	1.5	1	1.38	14	10	600	"	"	
CARGO LIGHTS										
ARC LAMPS										
HEATERS	1	16	7	1.7	50	48.7	72	"	"	

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.			COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT AMPERES.		Approximate Length (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Effective Area per Pole Sq. mm.	No.	Diameter.	In Circuit.	Rule.				
BALLAST PUMP	1	1	16	7	1.7	50	48	158	vulcan.	lead covered	
MAIN BILGE LINE PUMPS											
GENERAL SERVICE PUMP											
EMERGENCY BILGE PUMP AND	1	1	10	7	1.35	30	38	142	india	steel wire	
SANITARY PUMP											
CIRC. SEA WATER PUMPS											
CIRC. FRESH WATER PUMPS											
AIR COMPRESSOR <i>FOR AIRRAIL</i>	2	1	2	1	1.60	10	12.4	240	"	"	
FRESH WATER PUMP	2	1	2	1	1.60	10	12.4	86	"	"	
ENGINE TURNING GEAR											
ENGINE REVERSING GEAR											
COOLING WATER AND LUBRICATING OIL PUMPS	2	1	50	19	1.83	100	78.3	168	"	"	
OIL FUEL TRANSFER PUMP	1	1	10	7	1.35	30	38	138	"	"	
WINDLASS	1	1	42	19	2.52	145	390	362	"	"	
WINCHES, FORWARD	2	2	2 x 95	19	2.52	385	390	280	"	"	
WINCHES, AFT	4	2	2 x 95	19	2.52	335	390	280	"	"	
WARPING	33	1				115					
STEERING GEAR—											
(a) MOTOR GENERATOR	1	1	35	19	1.53	75	77.6	455	"	"	
(b) MAIN MOTOR	1	1	2	1	1.60	10	12.4	170	"	"	
WORKSHOP MOTOR											
VENTILATING FANS											
WINCHES MIDSHIP	1	1	35	19	1.53	85	85	168	"	"	
" "	1	1	35	19	1.53	85	85	168	"	"	
FUEL OIL PURIFIERS	2	1	2	1	1.60	7	12.4	110	"	"	
LUBR. OIL	1	1	2	1	1.60	7	12.4	200	"	"	

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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

H. HELWEG-LARSEN
ELEKTROINGENIØR, M. ENG. F.
GL. KONGEVEJ

Electrical Engineers.

Date

10/3/1930.

COMPASSES.

Distance between electric generators or motors and standard compass 105'

Distance between electric generators or motors and steering compass 100'

The nearest cables to the compasses are as follows:—

A cable carrying 1 Ampères 13 feet from standard compass 9 feet from steering compass.

A cable carrying 1/4 Ampères 8" feet from standard compass 8" feet from steering compass.

A cable carrying 1/2 Ampères 1 feet from standard compass 1 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.

The maximum deviation due to electric currents was found to be 0 degrees on any course in the case of the standard compass, and 0 degrees on any course in the case of the steering compass.

PR. ODENSE STAALSKIDSVÆRFT

VED A. P. MØLLER

Johannes Møller

Builder's Signature.

Date 11-3-30

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 electric light and power installation as above described has been fitted in accordance with the Society's Rules, the approved plan (with amendments as indicated) and the requirements contained in the Secretary's letter of dated 13/11/29.

The material used for the installation is of good description throughout and the workmanship of high quality.

On completion the whole installation was tested under full power working conditions and found satisfactory.

Recommend the vessel to have notation of ELECTRIC LIGHT in the Register Book.

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

Elec. Light

17/3/30.

Total Capacity of Generators 169 Kilowatts.

The amount of Fee ... £ 636.09

When applied for, 12 3 19 30

Travelling Expenses (if any) £

When received, 8 4 19 30

A. E. Fisher, C. L. Hilffes.
Surveyors to Lloyd's Register of Shipping.

Committee's Minute

FRI. 21 MAR 1930

Assigned

Elec. Lt.



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