

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

20 SEP 1928

Received at London Office

Date of writing Report *13<sup>th</sup> Sept* 1928, When handed in at Local OfficePort of *Copenhagen*No. in Survey held at *Copenhagen*Date, First Survey *16<sup>th</sup> June* Last Survey *25<sup>th</sup> August* 1928

Reg. Book.

(Number of Visits *22*)90407 on the *Steel Twin Screw Motor Vessel "HIDLEFJORD."*Tons { Gross *7638.59*  
Net *4488.97*Built at *Copenhagen*

By whom built

*Akt. Burmeister & Wain's**Haskin og Skibsløggeri.* Yard No. *548.*When built *1928*Owners *Aktieselskabet Motorskibet Hidleffjord.**(Kornelius Olsen)*

Port belonging to

*Åranger.*Electric Light Installation fitted by *Akt. Burmeister & Wain's Haskin og Skibsløggeri* Contract No. *548* When fitted *1928.*

## System of Distribution

*Two conductors, insulated system.*

## Pressure of supply for Lighting

*110*

volts, Heating

volts, Power

volts.

## Direct or Alternating Current, Lighting

*Direct current.*

## Power

*Direct current.*

If 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.

*0 per cent.*

, 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

series with each shunt field

*Yes.*

Are 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

*Yes*

Are the lubricating arrangements of the generators as per Rule

*Yes*

## Position of Generators

*In the machinery space.*

is the ventilation in way of the generators satisfactory

*Yes.*

, are they clear of all inflammable material

*Yes.*

if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators

*Not situated near unprotected woodwork*

, are the generators protected from mechanical injury and damage from water, steam or oil

*Yes*

are their axes of rotation fore and aft

*Yes*

Earthing, are the bedplates and frames of the generating plant efficiently earthed

*Yes*

are the prime movers and

their respective generators in metallic contact

*Yes.*

## Main Switch Boards, where placed

*In the machinery space.*

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

*Not situated near unprotected woodwork*

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

with mica or micamite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework

*Yes.*

and 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

*For each generator**a three pole circuit breaker with overload and reversed current trip.**For each outgoing circuit, a double pole switch and a double pole fuse.*

Instruments on main switchboard

*4* ammeters*3* voltmeters

synchronising device for paralleling purposes.

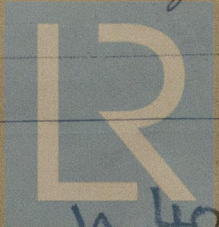
Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system

*Two Voltmeters, one**for 220 and one for 110 Volts are provided with Ohmscale, and the switchboard is provided with 2 sets of**earth testing lamps.*

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.*

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Lloyd's Register

W 400 F 0070 (1/2)



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 *about 5 Volts.*  
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 *No paper insulated cables used.*

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 *Armoured cables used, supported by screwed clips as per Rule, and where required protected by sheet iron casings or iron tubes.*

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 *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 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 *No earthing connections.*

are their connections made as per Rule *✓*

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 *✓*

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 *By iron tubes*

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *The lamps in the pump room are contained in gastight fittings protected by strong metal guards.*  
*through galvanized gas-tight iron tubes, screwed into the lamp fittings*  
how are the cables led

where are the controlling switches situated *On a small switchboard placed in the alley-way to the saloon.*  
*on the bridge deck.*

Searchlight Lamps, No. of *none*, whether fixed or portable *✓*, are their fittings as per Rule *✓*

Arc Lamps, other than searchlight lamps, No. of *none*, are their two 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 *Not situated near unprotected woodwork or other combustible material*  
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

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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2 off	66 each	220	300	400	Auxiliary Diesel oil engines.	Crude oil	above 150° F.
AUXILIARY	8		110	73	500	A steam engine.		
EMERGENCY								
ROTARY TRANSFORMER	1	12	220/110	109	1700	Electric motor.		

## LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current Amperes.	Approximate Length (Load and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter. mm.				
	MAIN GENERATOR	2	95	19	2.62	300	2 x 14	Galvanized rubber	Lead covered & braided steel wire remained unbraided.
	EQUALISER CONNECTIONS	1	95	19	2.52	73	2 x 21	"	"
	AUXILIARY GENERATOR	1	35	19	1.53	73	2 x 58	"	"
	EMERGENCY GENERATOR	1	40	19	2.16	109	" 38	"	"
	ROTARY TRANSFORMER	1	35	19	1.53	72	" 38	"	"
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	1	4	7	0.85	15	" 6	"	"
	BOILER ROOM								
	ACCOMMODATION								
	NAVIGATION	1	2.5	7	0.67	3.7	" 186	"	"
	SALOON HOUSE AMBUSHES	1	16	7	1.70	33	" 110	"	"
	ACCOMMODATION APT. STOVEBOARD	1	2.5	7	0.67	6.6	" 46	"	"
	" " " " " "	1	2.5	7	0.67	11.5	" 46	"	"
	WIRELESS	1	10	7	1.35	ca. 14	" 190	"	"
	SEARCHLIGHT	4	1.5	1	1.38	0.36	" 106	"	"
	MASTHEAD LIGHT	1	1.5	1	1.38	0.36	" 30	"	"
	SIDE LIGHTS	1	1.5	1	1.38	0.14	" 12	"	"
	COMPASS LIGHTS	1	1.5	1	1.38	0.2	" 210	"	"
	POOP LIGHTS	1	1.5	1	1.38	1.6	" 20	"	"
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS								

## MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor Sq. mm.	COMPOSITION OF STRAND.		Total Maximum Current Amperes.	Approximate Length (Load and Return) Feet.	Insulated with	HOW PROTECTED.
				No.	Diameter. mm.				
	BALLAST PUMP	1	10	7	1.35	36	2 x 53	Galvanized rubber	Lead covered & braided steel wire remained unbraided.
	MAIN BILGE LINE PUMPS								
	GENERAL SERVICE PUMP								
	EMERGENCY BILGE PUMP								
	BILGE & SANITARY PUMPS	1	10	7	1.35	36	" 46	"	"
	CIRC. SEA WATER PUMPS	2	35	19	1.53	73	" 75	"	"
	CIRC. FRESH WATER PUMPS								
	AIR COMPRESSOR								
	FRESH WATER PUMP	2	6	7	1.05	25	" 10	"	"
	ENGINE TURNING GEAR								
	ENGINE REVERSING GEAR								
	LUBRICATING OIL PUMPS	2	35	19	1.53	73	" 80	"	"
	OIL FUEL TRANSFER PUMP	1	10	7	1.35	36	" 37	"	"
	WINDLASS								
	WINCHES, FORWARD								
	WINCHES, AFT								
	STEERING GEAR								
	(a) MOTOR GENERATOR								
	(b) MAIN MOTOR	1	50	19	1.83	80	" 103	"	"
	WORKSHOP MOTOR								
	TURNING LATHE	1	2.5	7	0.67	10	" 12	"	"
	" DRILLING MACHINE	1	1.5	1	1.38	4	" 12	"	"
	" GRINDING	1	1.5	1	1.38	1.6	" 16	"	"
	LUBRICATING OIL PURIFIER	1	2.5	7	0.67	10	" 20	"	"
	FUEL OIL	1	2.5	7	0.67	10	" 8	"	"
	REFRIGERATING MACHINE	1	6	7	1.05	18	" 12	"	"
	BRINE PUMP	1	2.5	7	0.67	6	" 10	"	"
	MOTOR IN GALLEY	1	1.5	1	1.38	1.6	" 10	"	"
	FUEL OIL TRANSFER PUMP IN FORWARD PUMP ROOM	1	10	7	1.35	26	" 226	"	"
	LUBRICATING OIL HEATER								



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.

AKTIESELSKABET  
BURMEISTER & WAIN  
HASKIN OG SKIBSBYGGERI

Electrical Engineers.

Date

#### COMPASSES.

Distance between electric generators or motors and standard compass *about 70 metres*

Distance between electric generators or motors and steering compass *70*

The nearest cables to the compasses are as follows:—

A cable carrying *3.7* Amperes *8* feet from standard compass *12* feet from steering compass.

A cable carrying *0.14* Amperes *to lamp light from* standard compass *and in feet from* steering compass.

A cable carrying *✓* Amperes *✓* 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 *all* degrees on *all* course in the case of the standard compass, and *0* degrees on *all* course in the case of the steering compass.

AKTIESELSKABET  
BURMEISTER & WAIN  
HASKIN OG SKIBSBYGGERI

Builder's Signature.

Date

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 whole electric lighting and power installation as above described has been fitted in accordance with the requirements of the Rules, the approved plan and the Secretary's letter E dated the 27<sup>th</sup> April 1928.*

*The material used in the installation is of superior quality and the workmanship is of good description in every respect.*

*The whole electric installation has been tested under full power working condition and found to work satisfactorily.*

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

*Electric Light*

*24/9/28*

*Recommend the vessel to have notation in the Register Book of "Electric Light."*

Total Capacity of Generators *140* Kilowatts.

The amount of Fee ...

*£ 609.70*

When applied for,

*18.9.28*

Travelling Expenses (if any) £

When received,

*15.10.28*

*A. O. Johnson*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

*TUE 2 OCT 1928*

Assigned

*Electric Light*