

# REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

2 OCT 1933

Received at London Office.....

Date of writing Report 28th Sept 1933 When handed in at Local Office 29th Sept 1933 Port of Gothenburg

No. in Survey held at Gothenburg Date, First Survey 13th Sept Last Survey 24th Sept 1933  
Reg. Book. (Number of Visits.....)

on the M/S "WASHINGTON EXPRESS" Tons { Gross 3643  
Net 2166

Built at Gothenburg By whom built A/B Götaverken Yard No. 476 When built 1933

Owners SKIBS A/S SEATTLE Port belonging to Oslo.

Electric Light Installation fitted by A/B Götaverken Contract No. 476 When fitted 1933

Is the Vessel fitted for carrying Petroleum in bulk no.

System of Distribution Two - Wire - System

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct Power Direct

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. yes, 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 Forward in the motorroom

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

and -, 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 on a platform over the generators

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 of marble, 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 micaite 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 double pole linked circuit breaker with overload and reversed current trips and a single pole

equalizer switch. For each outgoing circuit: A single pole switch and a fuse at each pole.

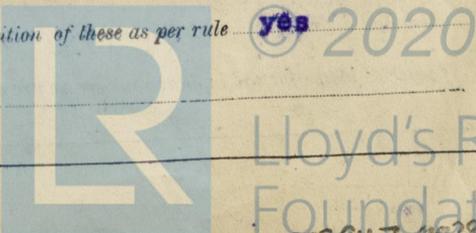
Instruments on main switchboard 9 ammeters 4 voltmeters - synchronising device for paralleling purposes.

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

with commutators for both pole

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, copper, covered, and protected~~ 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 **2 v + 3 percent for lighting**  
**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 **yes**  
**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 **supported by metal clips. All power cables lead covered and armoured, Lighting cables lead covered in cabins. For the rest lead covered and steel wire plaited or armoured.**  
 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 **no**. 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 main cables, joints in section cables as per rule**  
**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 **--**  
 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 **--**  
 are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected **--**  
 how are the cables led **--**  
 where are the controlling switches situated **--**  
**Searchlight Lamps, No. of** **--**, whether fixed or portable **--**, are their fittings as per Rule **--**  
**Are Lamps,** other than searchlight lamps, No. of **--**, are their live parts insulated from the frame of 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 out 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 **All except the turning motors**  
 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 **--** and **--**  
**Control Gear and Resistances,** are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule **yes**  
**Lighting 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 **--**  
 If portable lamps for use in dangerous spaces are supplied, are they of a type approved by the Home Office **--**

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	4	110	220	500	450	Diesel engine	Diesel oil	Above 150° F.
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION	No. per Pole	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	3	360	19	2.52	500		27-27-19-19	rubber	lead covered and armoured.	
EQUALISER CONNECTIONS	3	360	19	2.52			27-27-19-19	"	"	
AUXILIARY GENERATOR										
EMERGENCY GENERATOR										
ROTARY TRANSFORMER MOTOR GENERATOR	1	4	7	0.86	23		10	"	"	
ENGINE ROOM										
BOILER ROOM										
AUXILIARY SWITCHBOARDS										
Heating board aft	1	16	7	1.71	50		160	"	"	
" " midships I	1	70	19	2.17	125		50	"	"	
" " " II	1	35	19	1.53	70		50	"	"	
ACCOMMODATION midships	1	6	7	1.05	25		50	"	"	
" aft	1	2.5	7	0.67	5		160	"	"	
Deck forward	1	4	7	0.86	10		95	"	"	
" aft	1	4	7	0.86	10		110	"	"	
Lanterns	1	1.5	7	0.52	3		70	"	"	
WIRELESS	1	10	7	1.35	25		150	"	"	
SEARCHLIGHT										
MASTHEAD LIGHT	1	1.5	7	0.52	0.2		120-160	"	"	
SIDE LIGHTS	1	1.5	7	0.52	0.2		40-40	"	"	
COMPASS LIGHTS	1	1.5	7	0.52	0.2		15	"	"	
POOP LIGHTS	1	1.5	7	0.52	0.2		180	"	"	
CARGO LIGHTS	1	1.5	7	0.52	2.5		40	"	"	
ARC LAMPS										
HEATERS for oil	1	10	7	1.35	45		73	"	"	

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	1.71	47	73	Rubber	lead covered and armoured	
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP	1	1	10	7	1.35	36	76	"	"	
EMERGENCY BILGE PUMP	1	1	10	7	1.35	36	76	"	"	
SANITARY PUMP	1	1	2.5	7	0.67	12	72	"	"	
SEA WATER PUMPS	1	1	2.5	7	0.67	12	72	"	"	
CIRC. FRESH WATER PUMPS							54-60	"	"	
AIR COMPRESSOR	2	1	150	37	2.27	197	92	"	"	
FRESH WATER PUMP	1	1	1.5	7	0.52	8	78-78	"	"	
ENGINE TURNING GEAR	2	1	2.5	7	0.67	12	78-78	"	"	
ENGINE REVERSING GEAR & cooling w. LUBRICATING OIL PUMPS	2	1	150	37	2.27	216	20-20	"	"	
OIL FUEL TRANSFER PUMP	1	1	10	7	1.35	36	74	"	"	
WINDLASS	1	1	70	19	2.17	158	154	"	"	
WINCHES, FORWARD I & II	2	1	50	19	1.83	2x62	104	"	"	
WINCHES, AFT III & IV	2	1	50	19	1.83	2x62	132	"	"	
Deck Cranes Port	2	1	50	19	1.83	2x62	138	"	"	
STEERING GEAR	2	1	35	19	2.52	2(64 + 20)	89	"	"	
(a) MISC. GEAR	1	1	25	19	1.29	59	173	"	"	
(b) MAIN MOTOR	1	1	2.5	7	0.67	12	54	"	"	
WORKSHOP MOTOR	1	1	10	7	1.35	34	110-116	"	"	
VENTILATING FANS	5	1	10	7	1.35	34	100-100-96	"	"	
Cooling water pumps	2	1	16	7	1.71	49	48-68	"	"	
Brine pumps	2	1	10	7	1.35	39	40-40	"	"	
Refrigerator I & II	2	4	380	19	2.52	650	57-70	"	"	
" III	1	1	6	7	1.05	30	70	"	"	
Cooling water pump	2	1	4-1.5	7	0.86	20-8	28-58	"	"	
Lubr. oil separator	1	1	25	19	1.29	62	80	"	"	
Fuel oil separator	1	1	50	19	1.83	90	96	"	"	

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.

**AKTIEBOLAGET GÖTAVERKEN**

*U. S. Veelus*

Electrical Engineers.

Date **IX. 28. 1933.**

**COMPASSES.**

Distance between electric generators or motors and standard compass **9 meters**

Distance between electric generators or motors and steering compass **7 -**

The nearest cables to the compasses are as follows:—

A cable carrying Ampères feet from standard compass 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

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 degrees on course in the case of the standard compass, and degrees on course in the case of the steering compass.

**AKTIEBOLAGET GÖTAVERKEN**

*U. S. Veelus*

Builder's Signature.

Date **IX. 28. 1933.**

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

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

*The electric installation of this vessel has been fitted under our inspection and has been tested and found satisfactory.*

*The workmanship is good.*

*All the Rules requirements have been complied with.*

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

*Elec. Light*

*L.H.*

*4/10/33.*

Total Capacity of Generators **440** Kilowatts.

The amount of Fee **76 273 50**

When applied for,

**29/9 1933**

When received,

**16/10 1933**

Travelling Expenses (if any) £

*E. Bernerius*  
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute **TUE. 10. OCT 1933**

Assigned

*Elec Light*

Impr. 200.—(Transfer.)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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