

REPORT ON ELECTRIC FITTINGS.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 17 APR 1929

Date of writing Report 26.3.1929 When handed in at Local Office 13.4.1929 Port of GLASSGOW.

No. in Survey held at GREENOCK. Date, First Survey 26.2.29 Last Survey 29.3.1929
Reg. Book. (Number of Visits 5)

89103. on the M.V. ATHEL DUCHESS.

Tons {
Gross
Net

Built at PORT GLASSGOW. By whom built W. HAMILTON & CO Yard No. 406 When built 1929

Owners MESSRS UNITED MACHINES CO. LTD Port belonging to LIVERPOOL.

Electric Light Installation fitted by MESSRS TELFORD GRIER & MCKAY Contract No. 406 When fitted 1929

System of Distribution *Two Wire*

Pressure of supply for Lighting *110* volts, Heating *—* volts, Power *110V.* 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 overload *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 *no*, is an adjustable regulating resistance fitted in series with each shunt field *yes*

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

Position of Generators *in Main Engine Room near Starting Platform.*

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 axis 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 Bulkhead near 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, incombustible non-absorbent materials *yes*, is all insulation of high dielectric strength and of permanently high insulation resistance *marble*, if semi-insulating material is used, are all conducting parts connected to one pole insulated from the slab with mica or micanite and the slab similarly insulated from its framework *yes*, and is the frame effectively earthed *yes* Are the following fittings as per Rule, viz.:— 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

on each Generator Circuit Double Pole Overload Circuit Breaker with Time Lags

on each Outgoing Circuit Double Pole Change-over switch & Two Single Pole Fuses

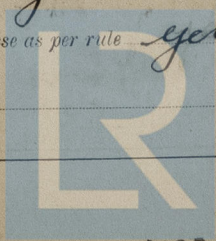
Instruments on main switchboard *Two* ammeters *Two* voltmeters *—* synchronising device for paralleling purposes.

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

Lamp Switch & Fuse in Circuit between each of the four bus bars & earth

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

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



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Foundation

Insulation of Cables, state type of cables, single or twin single are the cables insulated and protected as per Tables III or IV of the Rules yes
Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load 5 volts Lighting 7 volts Power
Cable Sockets and other connections, are the ends of all cables having a sectional area of 0.007 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 LC in Steel Lacing
In Accommodation LC Clipped to Bulkhead

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 VI 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 none

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 Positions, 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 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 yes

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 yes

has each navigation lamp an automatic indicating as per Rule yes are separate screens provided for the use of oil and electric side lights yes

are separate oil lanterns provided for the mast head lights and side lights 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 none

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 Watertight

Well Glass Fittings & in Pump Room double glass fittings, how are the cables led in Watertight Steel Tube

where are the controlling switches situated Outside dangerous spaces

Searchlight Lamps, No. of one, whether fixed or portable portable, 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

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 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	<u>Two</u>	<u>25</u>	<u>110</u>	<u>224</u>	<u>400</u>	<u>Enclosed Steam Engine</u>		
AUXILIARY	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>		
EMERGENCY	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>		
ROTARY TRANSFORMER	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>		

LIGHTING AND HEATING CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Conductors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.	Total Maximum Current Carried. Amperes.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.	
	MAIN GENERATOR...	one	.15	34	.072	224	62	paper	LC + Served
	AUXILIARY GENERATOR								
	EMERGENCY GENERATOR								
	ROTARY TRANSFORMER...								
	AUXILIARY SWITCHBOARDS								
	ENGINE ROOM	one	.01	4	.044	24	30	0.2R.	LC + A
	BOILER ROOM								
	Crew	one	.0145	4	.052	10	440	0.2R.	LC.
	Officers	one	.0225	4	.064	26	440	0.2R.	LC.
	Gyro	one	.01	4	.044	8	450	0.2R.	LC.
	Cargo	one	.01	4	.044	14	400	0.2R.	LC.
	Engineers	one	.01	4	.044	23	190	0.2R.	LC.
	Navigation	one	.004	4	.036	6	480	0.2R.	LC.
	Central Engine	one	.0225	4	.064	40	90	0.2R.	LC + A.
	Workshop	one	.01	4	.044	30	90	0.2R.	LC + A.
	Steering Apparatus	one	.075	19	.072	160	360	P.9.	LC + Served
	Steering Field	one	.075	19	.072	160	360	P.9.	LC + Served
	There is a 4 Pole Change-over switch so that either of Two Steering Motors can be fed from these Circuits.								
	WIRELESS	one	.01	4	.044	9	460	0.2R.	LC.
	SEARCHLIGHT	one	.04	19	.052	60	840	0.2R.	LC.
	MASTHEAD LIGHT...								
	SIDE LIGHTS...								
	COMPASS LIGHTS...								
	POOP LIGHTS								
	CARGO LIGHTS								
	ARC LAMPS								
	HEATERS								

There is a 4 Pole Change over switch so that either of Two steering Motors can be fed from these Circuits.

MOTOR CONDUCTORS.

Ref. No.	DESCRIPTION.	No. of Motors.	Effective Area of each Conductor. Sq. Ins.	COMPOSITION OF STRAND.	Total Maximum Current. Ampères.	Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	BALLAST PUMP	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	MAIN BILGE LINE PUMPS	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	GENERAL SERVICE PUMP	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	EMERGENCY BILGE PUMP	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	SANITARY PUMP	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	CIRC. SEA WATER PUMPS	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	CIRC. FRESH WATER PUMPS	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	AIR COMPRESSOR	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	FRESH WATER PUMP	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	ENGINE TURNING GEAR	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	ENGINE REVERSING GEAR	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	LUBRICATING OIL PUMPS	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	OIL FUEL TRANSFER PUMP	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	WINDLASS	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	WINCHES, FORWARD	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	WINCHES, AFT	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	STEERING GEAR	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	WORKSHOP MOTOR	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
	VENTILATING FANS	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

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.

TELFORD, GUTHRIE & MACKAY, LTD.

Electrical Engineers.

Date 8-4-29.

COMPASSES.

Distance between electric generators or motors and standard compass 200 ft

Distance between electric generators or motors and steering compass 200 ft

The nearest cables to the compasses are as follows:—

A cable carrying 6 Amperes 10 feet from standard compass 6 feet from steering compass.

A cable carrying 1/2 Amperes one feet from standard compass one 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 nil degrees on any course in the case of the standard

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

WILLIAM HAMILTON & CO. (1928) Limited

Builder's Signature.

Date 10/4/29

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

General Remarks (State quality of workmanship, opinions as to class, &c.) This installation has been fitted on board under special survey. Tested under full load conditions and found satisfactory. The materials and workmanship were found to be good and sound.

A.L.
13/4/29.

Electric light.
J.H. 24/4/29

Total Capacity of Generators 50 Kilowatts

The amount of Fee ... £ 27.10.0

Travelling Expenses (if any) £ 10.6.

When applied for, at 1/6

When received, 28 MAR 1929

J.S. Rankin.
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 16 APR 1929

Assigned to Electric Light.



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