

Rpt. 13.

No. 60755

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

MAR -1 1939

Received at London Office

Date of writing Report 13-2-39 When handed in at Local Office 27-2-39 Port of Glasgow
No. in Survey held at Greenock Date, First Survey 2-11-38 Last Survey 30-1-1939
Reg. Book. 72462 on the T.S.S. "CLAN FRASER"
Built at Greenock By whom built Greenock Dockyard Ltd. Yard No. 435. When built 1939.
Owners The Clan Line Steamers Ltd. Port belonging to Glasgow
Electric Light Installation fitted by Campbell & Isherwood. Contract No. 435. When fitted 1939
Is the Vessel fitted for carrying Petroleum in bulk no.

System of Distribution

two wire

Pressure of supply for Lighting

110

volts. Heating

volts. Power

110

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 temperature rise

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

Have certificates of test results for machines under 100 kw. been submitted and

approved

yes

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing

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 engine room

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

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, non-ignitable non-absorbent

materials

yes.

is all insulation of high dielectric strength and of permanently high insulation resistance

yes.

is it of an approved type

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

Sindamyo

is the non-hygroscopic insulating material of an approved

type

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

temperature rise of

omnibus bars

yes

individual fuses to voltmeter, pilot or earth lamp

yes

are moving parts of switches alive in the

"off" position

no

are all screws and nuts securing connections effectively locked

yes

are any fuses fitted on the live side of

switches

no

Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

D.P. switch and fuses for each generator, D.P.C.O. switch and fuses for each outgoing circuit.

Are turbine driven generators fitted with emergency trip switch as per rule

Are cupboards or compartments containing switchboards composed of

fire-resisting material or lined with approved material

Instruments on main switchboard

two

ammeters

two

voltmeters

synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

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

earth lamps

Switches, Circuit Breakers and Fusible Cut-outs,

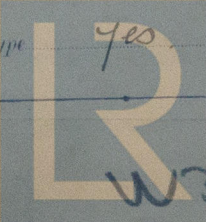
do these comply with the requirements of the Rules

yes

are the fusible cutouts of an approved type

yes

have the records



Lloyd's Register
W374-0056(1/2) 612

current protection devices been tested under working conditions

construction, protection, insulation, material, and position of these as per rule

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

If the cables are insulated otherwise than as per Rule, are they of an approved type

any point of the installation under maximum load

area of 0.04 square inch and above provided with soldering sockets

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with

insulating compound

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

Support and Protection of Cables, state how the cables are supported and protected *hains H.R. in galvanised conduit wiring in machinery spaces L.C.B. clipped wiring in accommodation L.C.B., H.R. clipped.*

If cables are run in wood casings, are the casings and caps secured by screws

separate grooves

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements

Joints in Cables, state if any, and how made, insulated, and protected

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

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the

holes efficiently bushed

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

position and method of control of the emergency supply and how the generator is driven

Navigation Lamps, are these separately wired

are the switches and fuses grouped in a position accessible only to the officers on watch

has each navigation lamp an automatic indicator as per Rule

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight

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

where are the controlling switches situated

are all fittings suitably ventilated

are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials

Heating and Cooking Appliances, are they constructed and fitted as per Rule

are air heaters constructed and fitted as per Rule

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 or case

are their fittings as per Rule

Motors, are their working parts readily accessible

are the brushes, brush holders, terminals and lubricating arrangements as per Rule

are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material

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

are their axes of rotation fore and aft

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

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing

field and motor speed regulators, starters and controllers constructed and fitted as per Rule

are required, are these fitted as per Rule

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

are all fuses of the fitted cartridge type

are they of an approved type

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts.	Volts.	Amperes.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	30	110	273	500	steam engine		
AUXILIARY								
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	Circuit.	Rule.			
MAIN GENERATOR	1	4	61	0.093	273	288	60	Rubber	L.C.B.
EQUALISER CONNECTIONS									
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER									
ENGINE ROOM	1	01	7	0.044	23	31	50	"	"
BOILER ROOM	1	01	7	0.044	21	31	30	"	"
AUXILIARY SWITCHBOARDS									
NAVIGATION D.B.	1	007	7	0.036	10	24	430	"	H.R.
FOR'D CARGO D.B.	1	01	7	0.044	27	31	360	"	"
AFT CARGO D.B.	1	007	7	0.036	15	24	160	"	"
ACCOMMODATION									
POOP LIGHTING D.B.	1	007	7	0.036	14	24	250	"	"
SALOON OFFICER D.B.	1	01	7	0.044	25	31	240	"	"
MIDSHIP D.B.	1	01	7	0.044	28	31	150	"	"
WIRELESS	1	0145	7	0.052	15	37	400	"	H.R. or L.C.B.
SEARCHLIGHT	1	002	3	0.029	36	7.8	450	"	"
MASTHEAD LIGHT	1	002	3	0.029	36	7.8	50	"	L.C.B.
SIDE LIGHTS	1	002	3	0.029	2	7.8	30	"	"
COMPASS LIGHTS									
POOP LIGHTS									
CARGO LIGHTS									
ARC LAMPS									
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT.		Approximate Length (Lead and Return) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
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										
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	1	1	0145	7	0.052	33.5	37	100	Rubber	L.C.B.
VENTILATING FANS	2	1	0045	7	0.029	14.6	18.2	80	"	"
" " DB	1	1	0225	7	0.064	29.2	46	90	"	H.R.
GYRO COMPASS.	1	1	007	7	0.036	14	24	50	"	"
PURIFIER	1	1	0145	7	0.052	17.2	37	150	"	L.C.B.
REFRIG. COMP.	1	1	1	19	0.083	90.3	118	70	"	"
BRINE PUMP.	1	1	0045	7	0.029	15.7	18.2	150	"	"
CIR. PUMP.	1	1	0045	7	0.029	15.7	18.2	140	"	"

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

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

The foregoing is a correct description.

CAMPBELL & FISHERWOOD LTD.

Electrical Engineers.

Date

22/2/39

COMPASSES.

Distance between electric generators or motors and standard compass

100 feet.

Distance between electric generators or motors and steering compass

95 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 2 Ampères led into feet from standard compass led into feet from steering compass.

A cable carrying 10 Ampères 12 feet from standard compass 8 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 any course in the case of the standard compass, and nil degrees on any course in the case of the steering compass.

THE GREENOCK DOCKYARD CO. LTD.

Builder's Signature.

Date

24th Feb 1939

Is this installation a duplicate of a previous case yes If so, state name of vessel

"CLAN FORBES"

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

The electrical equipment of this vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship are good.

Rob
27/2/39

Noted
2/3/39

Total Capacity of Generators 60 Kilowatts.

The amount of Fee £28 : 10 : 00

When applied for,

at 19

Travelling Expenses (if any) £

12/8 :

When received.

4 3 19 39 6/3

R. I. Knevelson

Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 28 FEB 1939

Assigned SEE ACCOMPANYING MACHINERY REPORT.