

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

17 MAR 1942

Date of writing Report.....19..... When handed in at Local Office..... 4/3/42 Port of Newcastle on Tyne

No. in Survey held at Walker Date, First Survey 19 Dec Last Survey 25 Feb 1942
Reg. Book. (Number of Vols. 6)

36394 on the NORFJELL previously EMPIRE SAXON Tons {Gross 8129
Net 4630

Built at Walker By whom built Swan Hunter & Wigham Yard No. 1706 When built 1941/2

Owners Iranian Govt for Ministry of War Transport belonging to CSLO

Electrical Installation fitted by Cambell & Jochenwood Contract No. When fitted 1942

Is vessel fitted for carrying Petroleum in bulk Yes Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. No Sub.Sig. No

Have plans been submitted and approved Yes System of Distribution Two wire Voltage of supply for Lighting 110

Heating No Power Geo Direct or Alternating Current, Lighting direct Power direct If Alternating Current state periodicity Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off. Are turbine emergency governors fitted with a trip switch as per Rule. Generators, are they compound wound Yes, are they level compounded under working conditions Yes,

are not compound wound state distance between generators. and from switchboard. Where more than one generator is fitted are they arranged to run in parallel No, are shunt field regulators provided Yes. Is the compound winding connected to the negative or positive pole Negative

Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing. Have certificates of test for machines under 100 kw. been supplied Yes and the results found as per rule Yes. Are the lubricating arrangements and the construction of the generators as per rule. Position of Generators.

Yes, is the ventilation in way of generators satisfactory Yes are they clear of inflammable material Yes, if situated near unprotected combustible material state distance from same horizontally. and vertically. are the generators protected from mechanical injury and damage from water, steam and oil Yes, are the bedplates and frames earthed Yes and the prime movers and generators in metallic contact. Switchboards, where are main switchboards placed Engine room, on platform after bulk head near generators

are they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam and oil Yes, if situated near unprotected combustible material state distance from same horizontally. and vertically. what insulation material is used for the panels Sindamp, if of synthetic insulating material is it an Approved Type., if of semi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule. Is the frame effectually earthed Yes

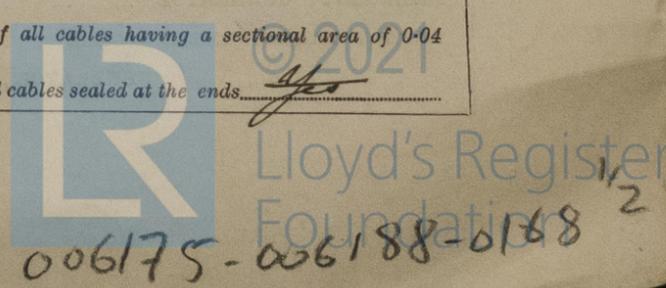
Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses to pilot and earth lamps, voltmeters, etc. Yes locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the "dead" side of switches Yes. Description of Main Switchgear for each generator and arrangement of equaliser switches Circuit breakers with coil and Reverse current trip.

and for each outgoing circuit Double pole, double throw quick break knife switches and double pole fuses

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 2 ammeters 2 voltmeters. synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the equaliser connection. Earth Testing, state means provided Earth lamps coupled to earth via switches & fuses

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Yes, are all fuses labelled as per Rule Yes. If circuit breakers are provided for the generators, at what overload current did they open when tested 500 A, are the reversed current protection devices connected on the pole opposite to the equaliser connection Yes, have they been tested under working conditions, and at what current did they operate. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule Yes

Cables, are they insulated and protected as per the appropriate Tables of the Rules Yes, if otherwise than as per Rule are they of an approved type. state maximum fall of pressure between bus bars and any point under maximum load Less than 5.0, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets Yes. Are paper insulated and varnished cambric insulated cables sealed at the ends Yes



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with insulating compound Yes or waterproof insulating tape Yes. Are all the cable runs in accessible positions, not exposed to drip or accumulation of water or oil, high temperatures or risk of mechanical damage. Yes, are cables laid under machines or floorplates. No, if so, are they adequately protected. Yes. Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit. Yes. State how the cables are supported and protected. Lead covered armoured and braided clipped to steel trays or direct to steel work in machinery spaces & galleys, lead covered & braided in accommodation.

Are all lead sheaths, armouring and conduits effectually bonded and earthed. Yes. Refrigerated chambers, are the cables and fittings as per Rule. Yes. Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands. Yes, where unarmoured cables pass through beams, etc., are the holes effectually bushed. Yes and with what material. Lead. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes. Emergency Supply, state position. Yes and method of control. Yes

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches. Yes and fuses. Yes. Are the switches and fuses in a position accessible only to the officers on watch. Yes, is an automatic indicator fitted. Yes. Secondary Batteries, are they constructed and fitted as per Rule. Yes, are they adequately ventilated. Yes what is the battery capacity in ampere hours. Yes

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. Yes. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present. Yes, if so, how are they protected. In gas and watertight boxes welded on inside of pump room casing. and where are the controlling switches fitted. midships, are all fittings suitably ventilated. Yes, only no cable fitted. are all fittings and accessories constructed and installed as per Rule. Yes. Searchlight Lamps, No. of provision whether fixed or portable. Yes, are their fittings as per Rule. Yes. Heating and Cooking, is the general construction as per Rule. Yes

are the frames effectually earthed. Yes, are heaters in the accommodation of the convection type. Yes. Motors, are all motors constructed and installed as per Rule. Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil. Yes, if situated near unprotected combustible material state minimum distance from same horizontally. Yes and vertically. Yes. Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment. Yes

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. Yes. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. Yes. Control Gear and Resistances, are they constructed and fitted as per Rule. Yes. Lightning Conductors, where required are they fitted as per Rule. Yes. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with. Yes, are all fuses of the cartridge type. Yes are they of an approved type. Yes. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. Yes. Are the cables lead covered as per Rule. Yes. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. Yes, are they suitably stored in dry situations. Yes. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory. 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	1	25	110	227	600	Steam		
	1	25	110	227	600	"		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	Nº1	25	1 37/103	227	296	52'-0"	V.C.	L.C.A+B
" EQUALISER	Nº2	25	1 37/103	227	296	52'-0"	V.C.	L.C.A+B
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS	1	37/083	133	184	780'-0"	V.C.	L.C.A+B
Area supply to wireless	1	7/064	15	46	900'-0"	V.I.R.	L.C.A+B
" " Navigation circuits	1	7/029	7.5	15	960'-0"	V.I.R.	L.C.A+B
Area supply to navigation circuits from main of 'td	1	7/044	1.5	21	120'-0"	V.I.R.	L.C.
Area of 'td							
Lighting aft accommodation	1	7/064	4.2	46	270'-0"	V.I.R.	L.C.A+B
Large lights aft	1	7/029	3	15	315'-0"	V.I.R.	L.C.A+B
Large lights forward	1	7/064	3.0	46	24'-0"	V.I.R.	L.C.A+B
" " Port	1	7/064	3.0	46	24'-0"	V.I.R.	L.C.A+B

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7/064	15	46	900'-0"	V.I.R.	L.C.A+B
NAVIGATION LIGHTS	1	7/029	1.5	15	960'-0"	V.I.R.	L.C.A+B
LIGHTING AND HEATING Large lights	1	7/036	7	24	24'-0"	V.I.R.	L.C.
Lighting centre castle	1	7/064	2.3	24	24'-0"	V.I.R.	L.C.
" Officer's room midships	1	7/036	1.8	24	96'-0"	V.I.R.	L.C.
" Pantry & saloon (Starboard)	1	7/029	1.2	15	42'-0"	V.I.R.	L.C.
" " (Port)	1	7/029	1.0	15	24'-0"	V.I.R.	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Vent fan aft	1	3.25	1	7/044	26	31	52'-0"	V.I.R. L.C.A+B
" " Midships	1	3.25	1	7/044	26	31	125'-0"	V.I.R. L.C.
Echo meter	1		1	7/036	18	24	108'-0"	V.I.R. L.C.

The Electrical Equipment is installed in accordance with the approved plans and the requirements of the Rules.
 All Insulated Conductors are guaranteed to have been tested at the maker's works as specified in the Rules.
 The foregoing is a correct description.

CAMPBELL & ISHERWOOD, LTD.

Thomas Wood

Electrical Engineers.

Date 23/3/42

COMPASSES.

Minimum distance between electric generators or motors and standard compass 280'-0"

Minimum distance between electric generators or motors and steering compass 285'-0"

The nearest cables to the compasses are as follows:—

A cable carrying 1/4 Ampères inside feet from standard compass — feet from steering compass.

A cable carrying 1/4 Ampères — feet from standard compass inside 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 every course in the case of the

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

SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

Thos Morrison

Builder's Signature.

Date 3rd March 1942

Is this installation a duplicate of a previous case Yes If so, state name of vessel EMPIRE FLINT

Plans. Are approved plans forwarded herewith No If not, state date of approval 28th Nov 1941

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith No

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.) The electrical

equipment of this vessel was installed under special survey and in accordance with the approved plans. The materials are of good quality and the workmanship good. On completion the equipment was operated under working conditions with satisfactory results, and the insulation resistance was measured and found

good. This equipment is in my opinion suitable for a classed vessel.

Noted
18/3/42

Total Capacity of Generators 50 Kilowatts.

The amount of Fee ... £ 34 : 7 : 6 When applied for, 16 MAR 1942
 Travelling Expenses (if any) £ : : When received,19.....

A. H. Cornell
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRL 20 MAR 1942
 Assigned See NWC. No 100252

501.4.30—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)

