

## REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

29 MAR 1945

Date of writing Report. 22<sup>nd</sup> March 1945 When handed in at Local Office. 24<sup>th</sup> March 1945 Port of Middlesbrough

No. in Survey held at Haverin Hill-on-Tees Date, First Survey 29-11-44 Last Survey 6-3-45  
Reg. Book. S/S. "WAVE GOVERNOR" (Number of Visits. 8)

on the S/S. "WAVE GOVERNOR" Tons {Gross 819.6  
Net 450.8

Built at Haverin Hill-on-Tees By whom built Furness Shipbuilding Co Ltd Yard No. 362 When built 1945

Owners Admiralty Port belonging to London

Electrical Installation fitted by Furness Shipbuilding Co Ltd Contract No. 362 When fitted 1945

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

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

Heating — Power 110 Direct or Alternating Current, Lighting Yes Power Yes 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 Yes 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,

if 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 Yes Position of Generators on generator flat above L.P. Bridges

, 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 Yes Switchboards, where are main switchboards placed on generator flat adjacent to 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 Wray "Indamux", if of synthetic insulating material is it an Approved Type Yes, 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 a double-pole, single-

throw quick-break knife switch and double-pole cartridge-type fuse: a double-pole, double

throw knife switch for supplying D.C. from either generator.

and for each outgoing circuit a double-pole, double-throw quick-break knife switch and double-

throw cartridge-type fuse.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard Two

ammeters Two 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 Lamps connected to E. through fuses & 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 —, are the reversed current

protection devices connected on the pole opposite to the equaliser connection —, 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 7.6%, are the ends of all cables having a sectional area of 0.01

square inch and above provided with soldering sockets Yes Are paper insulated and varnished cambric insulated cables sealed at the ends Yes



with insulating compound. *Plastic compound, 'Durakote' slaving* or waterproof insulating tape. 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. *In machinery spaces, along deck gangways etc V.C.C.A.B. cables clipped to metal bracing fastened to the surface. Accommodation V.C.C. cables clipped to the surface and protected as required by work or metal shields* 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 effectively 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. *Emergency supply* and method of control. *switches on the fittings* 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. *D.T.S.* "disproportion" flameproof lighting fittings as approved included and where are the controlling switches fitted. *in officers' accommodation* are all fittings suitably ventilated. *yes* are all fittings and accessories constructed and installed as per Rule. *yes* Searchlight Lamps, No. of. *yes* 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	2	30	110	273	683	Single Cylinder Vertical		
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	30	1	37.083	273	296	60	V.C.	L.C.A.B.
" " EQUALIZER	30	1	37.083	273	296	60	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							
Engine Room Machinery S.B.	1	7.064	56	75	180	V.C.	L.C.A.B.
Dist. Trans. S.B.	1	7.064	65	75	140	"	"
Dist. Switchboard Midship (Main)	1	37.083	105	296	640	"	"
" " (Emergency)	1	37.083	105	296	420	"	"
Store Connection	1	19.083	-	191	260	"	"
Dist. Switch S.B. aft.	1	7.052	32	57	120	"	"

#### LIGHTING AND HEATING, ETC., CABLES.

WIRELESS (off dist. switchboard)	1	7.064	50	75	160	V.C.	L.C.
NAVIGATION LIGHTS	1	7.064	22	42	120	"	"
LIGHTING AND HEATING	1	7.064	-	42	120	"	" (L.C.A.B. - Chatterbox)
Engine Room Lighting S.B. "E"	1	7.064	25	42	200	"	L.C.A.B.
" " " " "F"	1	7.064	22	42	40	"	"
aft. Large Lighting S.B. "C"	1	7.029	2	15	120	"	"
aft. Alarm " " "R"	1	7.052	33	57	140	"	"
" " " " "B"	1	7.052	32	57	120	"	"
Midship S.B. "H" (off dist. switchboard)	1	7.064	10	42	100	"	L.C.
Dist. " " " " "I"	1	7.064	5	42	320	"	L.C.A.B.
Pump Room S.B. " " " " "J"							(Distribution fuses mounted on dist. switchboard)
Midship S.B. " " " " "K"							"
Headlights " " " " "L"							"
Off dist. Midship S.B. " " " " "M"							"
Auto Drilling Machine " " " " "N"	1	7.056	10	28	130	V.C.	L.C.
Auto Compressor " " " " "O"	1	7.044	15	42	60	"	"
Radar Circuit " " " " "P"	1	7.044	27	42	130	"	"

#### MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
E.R. Vent Fan (off Machinery S.B.) P	1	3	1	7.064	20	42	310	V.C. L.C.A.B.
" " " " " Q	1	3	1	7.064	20	42	370	"
Oil Purifier Motor " " " R	1	5	1	7.064	5	10	85	"
" " " " " S	1	5	1	7.064	5	10	85	"
Forward Vent Fan " " " T	1	8	1	7.064	61	75	330	"
Aft. Vent Fan Motor (off P.S.B.) " " " U	1	8 1/2	1	7.064	27	42	310	" L.C.
" " " " " V	1	4.9	1	7.064	36	42	130	"
Frig. Air Pump (off Main S.B.) " " " W	1	1	1	7.029	7	15	140	" L.C.A.B.
Midship Air P. Fan (off Dist. S.B.) " " " X	1	4.9	1	7.064	35	42	230	" L.C.
Workshop Motor " " " Y	1	3	1	7.064	21	42	20	" L.C.A.B.
Brake Horse P. Fan " " " Z	1	2	1	7.036	16	28	160	" L.C.
" " " " " AA	1	2	1	7.036	16	28	100	"
" " " " " AB	1	2	1	7.036	16	28	300	"
" " " " " AC	1	2	1	7.036	16	28	200	"
Ref. Space Vent Fan " " " AD	1	5	1	7.029	4	15	130	"



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.

FURNESS SHIPBUILDING CO. LIMITED

Electrical Engineer

Date 16-3-45

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 15'

Minimum distance between electric generators or motors and steering compass 15'

The nearest cables to the compasses are as follows:—

A cable carrying 1/4 Ampères 7 feet from standard compass on the feet from steering compass.

A cable carrying 1/4 Ampères on the feet from standard compass 7 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 4/4

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted 4/4

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.

Builder's Signature

Date 16-3-45

Is this installation a duplicate of a previous case 4/4

If so, state name of vessel S.S. "Wave Imperator"

Plans. Are approved plans forwarded herewith No

If not, state date of approval 28-7-44

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith 4/4

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

The electrical equipment of this vessel has been installed under special survey in accordance with the approved plans and the Ministry of Shipping specifications and amendments thereto. The materials used are of good quality and design and the workmanship is good. Upon completion the equipment was operated under load with satisfactory results and the insulation resistance of each circuit was measured and found good. This equipment is, in my opinion, suitable for a classed vessel.

Noted 11.4.45

Total Capacity of Generators (2x30) 60 Kilowatts.

The amount of Fee ... £28. 10. 0. 7. 2. 6.

When applied for, 28. 3. 1945.

Travelling Expenses (if any) £ : :

When received, 19.

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 13 APR 1945

Assigned

See F.E. Mackay, rpt.