

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

NOV 28 1938.

Received at London Office

Date of writing Report 21st Nov. 1938 When handed in at Local Office

19

Port of **HAMBURG**No. in Survey held at **HAMBURG**Date, First Survey 22nd Septemb. Last Survey 9th November 1938

Reg. Book,

(Number of Visits 12)

76500 on the Steel Single Screw No. 1. **INVERSUIR**Tons { Gross 9456
Net 5561Built at **HAMBURG**

By whom built Deutsche Werft A. G.

Yard No. 203

When built 1938

Owners Inver Tankers, Ltd

Port belonging to Dublin

Electric Light Installation fitted by Allgemeine Elektrizitäts Gesellschaft

Contract No.

When fitted 1938.

Is the Vessel fitted for carrying Petroleum in bulk yes

System of Distribution

two wire, two conductor system

Pressure of supply for Lighting

110

volts, Heating

110

volts, Power

110

volts.

Direct or Alternating Current, Lighting

direct current

Power

direct current

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

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

Have certificates for generators under 100 kw. been supplied and approved

certificates attached

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

port side of engine room floor

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

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

port side of engine room floor

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 marble, tested to 2000 volts AC, 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 micanite or other

non-hygroscopic insulating material, and the slab similarly insulated from its framework

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

For each generator a double pole linked switch and a fuse on each pole.

For each outgoing circuit a double pole change over switch and a fuse on each pole.

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

yes

Instruments on main switchboard

2

ammeters

2

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

Voltmeter with Ohm scale.

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 reversed

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current protection devices been tested under working conditions — are all fuses labelled as per rule *yes*

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

Cables: Single, ~~twi~~, ~~con~~, or multicore *yes* are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules *generally*
If the cables are insulated otherwise than as per Rule, are they of an approved type — *Fall of Pressure*, state maximum between bus bars and

any point of the installation under maximum load *3.5 Volts* Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *yes* Paper Insulated and Varnished Cambric Insulated Cables.

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 —, or waterproof insulating tape — 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* are cables laid under machines or floorplates *yes* if so, are they adequately protected *yes*

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *lead covered*

Support and Protection of Cables, state how the cables are supported and protected *all lead covered and armoured cables clipped on galvanized sheet iron cable runs and where necessary wholly enclosed in galvanized steel casing or tubing*
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 VIII *yes*

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

Joints in Cables, state if any, and how made, insulated, and protected *gas-tight joint boxes*

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 and wood*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *none*

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* in wheel house

has each navigation lamp an automatic indicator as per Rule *yes* Secondary Batteries, are they constructed and fitted as per Rule —

are they ventilated 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 *gas-tight fitted*

strongly protected glass bowls in pump rooms how are the cables led

in gas-tight galvanized tubing in the forepeak pump room and in the space immediately over the tanks in midship house

where are the controlling switches situated *on bridge deck*

are all fittings suitably ventilated *yes* are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *yes*

Heating and Cooking Appliances, are they constructed and fitted as per Rule *yes* are air heaters constructed and fitted as per Rule —

Searchlight Lamps, No. of — whether fixed or portable — 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* are their axes of rotation fore and aft *yes* except two rudder 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 —

—, if not of this type, state distance of the combustible material horizontally or vertically above the motors — and —

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing — have certificates for all motors for

essential services been supplied and approved *please find attached* Control Gear and Resistances, are the generator field and motor speed

regulators, starters and controllers constructed and fitted as per Rule *yes* Lightning Conductors, where lightning conductors

are required, are these fitted as per Rule *steel masts* 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* are all fuses of the filled cartridge type *yes* are they of an approved type *yes*

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed flameproof type approved for use in dangerous spaces —

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *yes* are they suitably stored in dry situations *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	30	115	260	450	Compound steam engine	—	—
AUXILIARY ...	1	30	115	260	500	High, 250 S.A. oil eng.	diesel oil	above 150° F.
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. mm.	No.	Diameter mm.	In Circuit.	Rule.			
MAIN GENERATOR No. 1 & 2	1	340	19	1.84	260	271.8	14		
SHORE CONNECTIONS	1	50	19	1.83	100	98.3	36		
AUXILIARY GENERATOR									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER / MOTOR									
ENGINE ROOM	1	1.5	1	1.38	~6	9.4	~22		
BOILER ROOM									
AUXILIARY SWITCHBOARDS No. 1 & 2	1	25	19	1.3	60	63.2	168		
" " " " No. 1 & 2	1	25	19	1.3	60	63.2	10		
Navigation control board	1	2.5	1	1.78		15.5	200		
Anti-switchboard No. 5	1	2.5	1	1.78		15.5	114		
" " " " " 3	1	35	19	1.53	70	77.7	56	Rubber	In accommodation - spaces lead covered
" " " " " 4	1	10	19	0.82	30	38.1	34		All the other cables lead covered and armoured.
ACCOMMODATION " " " 6	1	35	19	1.53	51	77.7	66		
" " " " " 7	1	70	37	1.55	117	123.7	22		
Heating plate 3 kW	1	10	19	0.82	27	38.1	50		
" " " 1.2 kW	1	2.5	1	1.78	11	15.5	20		
Echo sounding device	1	2.5	1	1.78	10	15.5	212		
WIRELESS	1	10	19	0.82	32	38.1	184		
SEARCHLIGHT									
MASTHEAD LIGHT FORECAST	1	1.5	1	1.38	0.37	9.4	145 / 150		
SIDE LIGHTS	1	1.5	1	1.38	0.37	9.4	40		
COMPASS LIGHTS	1	1.5	1	1.38	0.14	9.4	15		
POOP LIGHTS	1	1.5	1	1.38	0.37	9.4	250		
CARGO LIGHTS on both masts	1	2.5	1	1.78	4.6	15.5	104 / 120		
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. mm.	No.	Diameter mm.	In Circuit.	Rule.			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	10	19	0.82	25.6	38.1	24		
CIRC. SEA WATER PUMPS FOR MIDSHIP HOUSE	1	1	2.5	1	1.78	6.3	15.5	29		
CIRC. FRESH WATER PUMPS	1	1	2.5	19	1.3	69	63.2	72		
AIR COMPRESSOR REFRIGERANT	1	1	10	19	0.82	25.6	38.1	66		
FRESH WATER PUMP	1	1	50	19	1.83	120	114.8	68		
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS										
OIL FUEL TRANSFER PUMP										
WINDLASS										
WINCHES, FORWARD										
2-MOUNT DONKEY BOILER WATER CIRCULATING PUMP	1	1	10	19	0.82	25.6	38.1	92		
WINCHES, AFT										
OIL PURIFIER	2	1	10	19	0.82	25.6	38.1	15 / 16		
STEERING GEAR—										
(a) MOTOR GENERATOR	1	1	50	19	1.83	125 / 29	114.8	124		
(b) MAIN MOTOR	2	1	50	19	1.83	79	114.8	20		
WORKSHOP MOTOR										
VENTILATING FANS										
LATHE	1	1	4	19	0.52	17.6	22.1	30		
GRINDING STONE	1	1	1.5	1	1.38	4.5	9.4	24		
DRILLING MACHINE	1	1	4	19	0.52	17.6	22.1	28		
"DEMAG" - HOIST	1	1	35	19	1.53	79	84.7	22		
3 AIR COMPRESSORS FOR OIL FIRED STOVE (1 for spare)	3	1	2.5	1	1.78	16.8	15.5	50		

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The Electrical Equipment is installed in accordance with the approved plans.

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

The foregoing is a correct description.

ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT
ABTHEILUNG SCHIFFBAU

Electrical Engineers.

Date 21. November 1938.

COMPASSES.

Minimum distance between electric generators or motors and standard compass about 15 metres

Minimum distance between electric generators or motors and steering compass about 15 metres

The nearest cables to the compasses are as follows:—

A cable carrying 0.2 Ampères close to feet from standard compass. close to 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 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 — course in the case of the standard compass, and nil degrees on — course in the case of the steering compass.

DEUTSCHE WERFT
AKTIENGESELLSCHAFT

Builder's Signature.

Date

21. 11. 1938

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

General Remarks (State quality of workmanship, opinions as to class, &c. Material and workmanship of this

Electrical Installation are of good quality. It has been fitted under Special Survey in accordance with the approved plans, the Secretary's letter and otherwise in compliance with the requirements of the Rules and is eligible in my opinion to be classed. It has given satisfaction under working conditions.

Noted
29/11/38

Total Capacity of Generators 60 Kilowatts.

The amount of Fee ... RM 570: - : { When applied for, 16. 11. 1938.

Travelling Expenses (if any) £ — : { When received, 29/12/38

Committee's Minute

Assigned

See Ham 7E 22970

H. Rohrs

Surveyor to Lloyd's Register of Shipping.



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