

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

25 AUG 1945

Date of writing Report 30<sup>th</sup> March 1943 When handed in at Local Office

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Port of Copenhagen

No. in Survey held at Copenhagen

Date, First Survey 10<sup>th</sup> August 42 Last Survey 6<sup>th</sup> March 1943

Reg. Book.

(Number of Visits 17)

on the Single Screw Motor Vessel "NAVITAS"

Tons { Gross 2273.30  
Net 1164.43

Built at Copenhagen

By whom built Asker og Skibsbyggeri Yard No. 666

When built 1943

Owners As of Navitas

Port belonging to Copenhagen

Electric Light Installation fitted by The ship builders

Contract No. - When fitted 1943

Is the Vessel fitted for carrying Petroleum in bulk no

System of Distribution 2 conductor insulated system

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 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 yes, 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 none

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

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 the engine room, floor level, 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 no wood work etc.

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 On a platform in the after end of the engine room

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 no wood work etc.

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 micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework yes

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 generator: - A 3 pole circuit breaker with overload & reversed current trips

For outgoing circuits: - A 2 pole with fuses 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 5 ammeters 3

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

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

1 set of earth lamps, 1 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



current protection devices been tested under working conditions yes 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, twin, concentric, or multicore single are the cables insulated and protected as per Tables IV, V, X, XI, XII or XIII of the Rules yes

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 4.5 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 no if so, are they adequately protected -

Are cables in machinery spaces, galleys, lavatories, bathrooms and lavatories lead covered or run in conduit lead covered & wire armoured

**Support and Protection of Cables,** state how the cables are supported and protected lead covered & wire armoured cables laid on steel plates and secured by steel clips

If cables are run in wood casings, are the casings and caps secured by screws -, are the cap screws of brass -, are the cables run in separate grooves - 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 -

**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 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

**Earthing Connections,** state what earthing connections are fitted and their respective sectional areas - are their connections made as per Rule 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 -

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

**Fittings,** are all fittings on weather decks, in storerooms 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 no

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected no how are the cables led -

where are the controlling switches situated -

are all fittings suitably ventilated -, 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 -, 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, 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 no 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 none have certificates for all motors for essential services been supplied and approved yes

**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 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 - 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 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 - are they suitably stored in dry situations 2

PARTICULARS OF GENERATING PLANT.								
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN ...	2	66	220	300	540	2 off 4 cyl 4505 A Diesel	Oil	
EMERGENCY ...	1	33	220	150	540	1 off 2 cyl - - - - -	Oil	150° F
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.										
DESCRIPTION.	No. per Pole.	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.			
2 MAIN GENERATORS ... 66 KW	2	2	2.95	-	-	300	300	32 - 36	Purkin Rubber	Lead covered & wire armoured
EQUALISER CONNECTIONS	1	1	.95	-	-	-	150	-	-	-
1 MAIN GENERATOR 33 KW	2	2	2.70	-	-	150	248	49	-	-
1 EMERGENCY GENERATOR	1	1	.70	-	-	-	124	-	-	-
ROTARY TRANSFORMER MOTOR										
ENGINE ROOM ...	1	1	1.5	-	-	7	7	25	-	-
BOILER ROOM ...	1	1	1.20	-	-	168	175	70	-	-
MAIN LIGHT AUXILIARY SWITCHBOARDS	1	1	.16	-	-	38	48	15	-	-
WINDMILL ...	1	1	.95	-	-	130	150	180	-	-
- - - midship	1	1	1.50	-	-	152	202	120	-	-
- - aft	1	1	1.50	-	-	172	202	30	-	-
Workshop etc	1	1	.35	-	-	40	78	15	-	-
Scrubber pump	1	1	.70	-	-	115	124	65	-	-
Ballast & Sewage pump	1	1	.70	-	-	108	124	50	-	-
Accommodation	1	1	.4	-	-	13	21	90	-	-
LIGHT TANKS	1	1	2.5	-	-	11	13	20	-	-
- - aft	1	1	2.5	-	-	11	13	20	-	-
NAVIGATION LIGHT	1	1	2.5	-	-	2.5	13	110	-	-
WIRELESS	1	1	.4	-	-	5	21	110	-	-
SEARCHLIGHT										
MASTHEAD LIGHT										
SIDE LIGHTS	1	1	1.5	-	-	-	-	-	-	-
COMPASS LIGHTS										
POOP LIGHTS										
CARGO LIGHTS										
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	40	1	1	35	-	65	78	5	Purkin Rubber	Lead covered and wire armoured
Ballast Pump	17	1	1	16	-	40	48	50	-	-
MAIN BILGE LINE PUMPS	10	1	1	16	-	40	48	50	-	-
GENERAL SERVICE PUMP	1	1	1	2.5	-	5	13	42	-	-
Scrubber	1	1	1	2.5	-	5	13	42	-	-
EMERGENCY BILGE PUMP	20	1	1	50	-	81	98	5	-	-
SANITARY PUMP	1	1	1	16	-	41	48	16	-	-
CIRC. SEA WATER PUMPS	10	2	1	16	-	41	48	60	-	-
CIRC. FRESH WATER PUMPS	3	1	1	2.5	-	12.3	13	42	-	-
AIR COMPRESSOR	44	2	1	120	-	163	175	25	-	-
EVAPORATOR	3	1	1	2.5	-	13	13	40	-	-
FRESH WATER PUMP	3	1	1	2.5	-	13	13	40	-	-
ENGINE TURNING GEAR	3	1	1	4	-	13	21	15	-	-
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	14	2	1	25	-	54	63	50	-	-
OIL FUEL TRANSFER PUMP										
WINDLASS	34	1	1	95	-	130	150	10	-	-
WINCHES, FORWARD	25	2	1	50	-	95	98	10	-	-
- - midship	25	4	1	50	-	95	98	10	-	-
WINCHES, AFT	35	2	1	95	-	135	150	40	-	-
Capstans	125	1	1	25	-	50	63	35	-	-
STEERING GEAR										
(1) MOTOR GENERATOR										
(2) MAIN MOTOR	8	1	1	16	-	37	48	36	-	-
WORKSHOP MOTOR	LATHES	1	1	2.5	-	13	13	5	-	-
VENTILATING FANS	48	1	1	6	-	19	29	10	-	-
Without uppers	25	2	1	2.5	-	10.5	13	15-8	-	-
Gas generators	4	1	1	4	-	18	21	20	-	-
TAR Separators	9	4	1	16	-	36	48	35	-	-
Coal breakers	5	2	1	6	-	20	29	20	-	-
Gas suction fan	7.5	1	1	10	-	29	38	30	-	-
Coal lift	3	1	1	2.5	-	12	13	40	-	-
Ash hoist	3	1	1	2.5	-	13	13	40	-	-



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.

BURMEISTER & WAIN MÅSIN OG SKIBSBYGGERI

Electrical Engineers.

Date 1-4-43.

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 7 m

Minimum distance between electric generators or motors and steering compass 9 m

The nearest cables to the compasses are as follows:—

A cable carrying 1 Ampères 4 m feet from standard compass and 4 m 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 0 degrees on any course in the case of the standard compass, and 0 degrees on any course in the case of the steering compass.

BURMEISTER & WAIN MÅSIN OG SKIBSBYGGERI

Builder's Signature.

Date 1-4-43.

Is this installation a duplicate of a previous case no If so, state name of vessel

General Remarks (State quality of workmanship, opinions as to class, &c. The electric installation as

described has been constructed and fitted under special survey in accordance with the Rules, the approved plans and to my satisfaction. The materials used is of good description and the workmanship is good.

On completion the whole installation was tested under full power working condition and found good and efficient in every respect.

Total Capacity of Generators 165 Kilowatts.

The amount of Fee ... £ 864.00

When applied for,  
1-4-43.

Travelling Expenses (if any) £

When received.

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J. Langhise Jensen.  
Surveyor to Lloyd's Register of Shipping.

FRI, 4 JAN 1946

Committee's Minute

Assigned

See fe mark  
vpl.



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