

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

APR 12 1940

Date of writing Report 4<sup>th</sup> Mar. 1940 When handed in at Local Office 4<sup>th</sup> Mar. 1940 Port of Hongkong  
 No. in Survey held at Hongkong Date, First Survey Dec 5<sup>th</sup> 1939 Last Survey March 2<sup>nd</sup> 1940  
 Reg. Book. (Number of Visits 15) 1341.90  
Single Screw Steamer "KARUAH" Tons { Gross 1199.00  
 Net 514.55

Built at Hongkong By whom built The H.K. Whampoa Dock Co. Ltd Yard No. 819 When built 1940  
 Owners The Newcastle & Hunter River Steamship Co. Ltd Port belonging to Newcastle, N.S.W.  
 Electrical Installation fitted by The Hongkong & Whampoa Dock Co. Ltd Contract No. ✓ When fitted 1940

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

Have plans been submitted and approved yes System of Distribution Two Wires Voltage of supply for Lighting 110

Heating 110 Power 110 Direct or Alternating Current, Lighting Direct Power Direct If Alternating Current state frequency ✓ Prime Movers,

has the governing been tested and found efficient when the whole 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 yes, are shunt field regulators provided yes Is the compound winding connected to the negative or positive pole positive

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 Starboard side of engine room

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 Starboard side of engine room

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 Ebony Sindangyo, 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 one 200 amps. T.P. circuit breaker + one 150 amps. T.P. circuit breaker, both provided with overload and reverse current trips. Equaliser mechanically interlocked.

and for each outgoing circuit 2 - 100 amps. D.P. knife switches + 6 - 60 amps. D.P. knife switches

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 yes Earth Testing, state means provided Earth lamps.

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, are the reversed current protection devices connected on the pole opposite to the equaliser connection yes, have they been tested under working conditions yes. 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 0.5 Volts, 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 exposed ends yes with insulating compound ✓ 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 ✓. Are cables in machinery spaces, galleys, laundries, etc., lead covered yes or run in conduit ✓. State how the cables are supported and protected leather run on metal plating secured by clips + screws, + protected by galvanized sheet iron where necessary.

Are all lead sheaths, armouring and conduits effectually bonded and earthed yes. Refrigerated chambers, are the cables and fittings as per Rule wiring + fittings outside. 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 ✓ and method of control ✓. 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 ✓, are they adequately ventilated ✓. 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 no, if so, how are they protected ✓.

and where are the controlling switches fitted ✓, are all fittings suitably ventilated yes, are all fittings and accessories constructed and installed as per Rule yes. Searchlight Lamps, No. of ✓, whether fixed or portable ✓, are their fittings as per Rule ✓. 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 ✓ and vertically ✓. Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing ✓. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule no. See Remark Control Gear and Resistances, are they constructed and fitted as per Rule yes. Lightning Conductors, where required are they fitted as per Rule not required. 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 ✓, are all fuses of the 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 ✓. 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 megger 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	20	110	182	550	steam Engine	✓	✓
EMERGENCY ...	1	12	110	109	1000	20-BHP oil engine	Diesel oil	above 150° F.
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load 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 ...	20	1	0.2 <sup>sq</sup>	182	296	50'	V.C.	LC+A
" EQUALISER ...		1	0.1 <sup>sq</sup>		191	25'	V.C.	LC+A
Emerg. "	12	1	0.1 <sup>sq</sup>	109	191	50'	V.C.	LC+A
" Equaliser		1	0.06 <sup>sq</sup>		135	25'	V.C.	LC+A
EMERGENCY GENERATOR ...								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR ...								

MAIN DISTRIBUTION CABLES. To Section Boxes

AUX. SWITCHBOARDS AND SECTION BOARDS ...								
Radiators Mains	1	.06 <sup>sq</sup>	72	135	70'	V.C.	LC+A	
Motors "	1	.075 <sup>sq</sup>	93.6	157	80'	V.C.	LC+A	
Engine + Boiler Rooms "	1	.0215 <sup>sq</sup>	26	75	80'	V.C.	LC+A	
Upper + 2 <sup>nd</sup> Deck "	1	.01 <sup>sq</sup>	26.4	42	70'	V.C.	LC+A	
Bridge + Poop Dk. "	1	.01 <sup>sq</sup>	26.0	42	70'	V.C.	LC+A	
Cargo + Hold Lts. "	1	.0145 <sup>sq</sup>	34.6	57	400'	V.C.	LC+A	
Navigation "	1	.003 <sup>sq</sup>	1.8	10	200'	V.I.R.	LC+A and L.C.	

LIGHTING AND HEATING, ETC., CABLES. From Section boxes to Fuse Boxes.

WIRELESS ...								
each Main	1	.003 <sup>sq</sup>	2.3	10	280	V.I.R.	LC+A + L.C.	
NAVIGATION LIGHTS Sub-Circuits	1	.003 <sup>sq</sup>	0.36	10	220	V.I.R.	LC.	
LIGHTING AND HEATING Sub-Circuits								
Radiators, Poop Deck, Upper Deck	1, 1	.06 <sup>sq</sup> , .007 <sup>sq</sup>	50, 22	135, 28	120, 80	V.C., V.C.	LC.	
Engine Room, Boiler Room Lights	1, 1	.0045 <sup>sq</sup> , .0045 <sup>sq</sup>	16, 10	15	6, 110	V.I.R., V.I.R.	LC	
Upper Deck P+S	1, 1	.003 <sup>sq</sup> , .003 <sup>sq</sup>	9.6, 6.5	10, 10	10, 80	" "	"	
2 <sup>nd</sup> Deck	1	.0045 <sup>sq</sup>	10.3	15	50	V.I.R.	"	
Poop Deck P+S	1, 1	.003 <sup>sq</sup> , .0045 <sup>sq</sup>	9.7, 13.6	10, 15	120, 200	" "	"	
Wheelhouse	1	.003 <sup>sq</sup>	3.5	10	160	"	"	
Tween Deck, Cargo Lts.	1, 1	.007 <sup>sq</sup> , .007 <sup>sq</sup>	18.1, 16.5	28, 28	6', 6'	V.C., V.C.	"	

MOTOR CABLES. From Section Boxes

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
N°1 Stoker Motor	1	3	1	.01 <sup>sq</sup>	28.6	42	120	V.C. LC+A
N°2 " "	1	3	1	.01 <sup>sq</sup>	28.6	42	120	V.C. LC+A
Thermotank Motor	1	1 1/2	1	.007 <sup>sq</sup>	13.4	24	120	V.I.R. LC+A
Refrigerator Motor (Stones)	1	1	1	.003 <sup>sq</sup>	9.6	10	70	V.I.R. LC+A
Crane Motor	1	1 1/2	1	.007 <sup>sq</sup>	13.4	28	300	V.C. LC+A

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. HONGKONG & WHAMPOA DOCK Co., Ltd.

*Neock.*  
 CHIEF MANAGER Electrical Engineers.

Date 6-3-40

COMPASSES.

Minimum distance between electric ~~generators or~~ motors and standard compass... 28 ft

Minimum distance between electric ~~generators or~~ motors and steering compass... 20 ft

The nearest cables to the compasses are as follows:—

A cable carrying .25 Ampères <sup>Compass</sup> ~~Light~~ feet from standard compass <sup>Compass</sup> ~~Light~~ feet from steering compass.

A cable carrying .40 Ampères ✓ 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.

HONGKONG & WHAMPOA DOCK Co., Ltd.

Builder's Signature.

Date 6-3-40

*Neock.*  
 CHIEF MANAGER

Is this installation a duplicate of a previous case... No If so, state name of vessel ✓

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

This electric equipments has been efficiently fitted on board in accordance with the rules + approved plans + the materials + workmanship are good.

On completion the installation was megger tested + tried under full load conditions + found satisfactory.

6 certificates for generators enclosed.

Makers' test certificates for Mechanical Stokers Motor + Thermostat Motors were not delivered here:—

Stoker Motors:— The English Electric Co. Ltd n<sup>o</sup> 540596/1 + 2; Size ACB 9.

Thermostat Motor:— Thermostat Ltd n<sup>o</sup> 89609; Unit n<sup>o</sup> 25136.

Total Capacity of Generators... 32 Kilowatts.

The amount of Fee ... £ 66 = \$ 745: When applied for, 4<sup>th</sup> Mar 1940

Travelling Expenses (if any) \$ 25: When received, 2<sup>nd</sup> May 1940  
 Total \$ 770

*J. Morrison*  
 Surveyor to Lloyd's Register of Shipping.

FRL 10 APR 1940

Committee's Minute

Assigned

*See HKG 3<sup>rd</sup> 8541*

2m. 10. 38.—Transfer. (MADE IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)



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