

18 SEP 1960

Rpt. 13.

No. 91590

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 23 8 19 60 When handed in at Local Office 5 9 19 60 Port of GLASGOW

No. in Survey held at Grangemouth Date, First Survey 5.10.59 Last Survey 17.8.1960
Reg. Book. (No. of Visits 10)

on the M.V. "MOANA ROA"

Built at Grangemouth By whom built Grangemouth Dockyard Co. Ltd. Yard No. 526 When built 1960
Owners New Zealand Government (Dept. of Port belonging to Auckland)

Installation fitted by Grangemouth Dockyard Co. Ltd. When fitted 1960

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

Plans, have they been submitted and approved Yes System of Distribution Two Wire insulated Voltage of Lighting 220

Heating 220 Power 220 D.C. or A.C., Lighting D.C. Power D.C. If A.C. state frequency -

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

Are the generators arranged to run in parallel Yes Is the compound winding connected to the negative or positive pole Negative

Have machines 100 kw. and over been inspected by the Surveyors during manufacture and testing Yes Have certificates of test for machines under 100 kw. been supplied and the results found as per Rule Yes

Position of Generators Main Generators:- E.R. Port & Star. fore. E.R. port & star. aft. Shore Generators:- E.R. port main dk. level, Emergency. In emergency generator room Boat Dk. Star.

is the ventilation in way of generators satisfactory Yes are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil Yes

Switchboards, where are main switchboards placed Main sw. bd:- On raised platform E.R. star. fore and aft. Emerg. sw. bd:- In Emerg. Gen. Room Boat Dk. Refrig. Sw. bd:- In refrig. machinery room

are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water, steam and oil Yes, what insulation is used for the panels Sindanyo, 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 construction as per Rule, including locking of screws and nuts Yes

Description of Main Switchgear for each generator and arrangement of equaliser switches Main generators:- TP CB with O/L and N/V protection and S/T operated from R/C relay for R/C protection, Shore Generators:- TP CB with O/L, R/C & N/V protection. In both cases the third pole is used as the equaliser connection. Emerg. Gen.:- DP CB with O/L protection

and the switch and fuse gear (or circuit breakers) for each outgoing circuit DP CB with O/L protection or DP knife switches and rewirable fuses

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 6

ammeters 6 voltmeters - synchronising devices. For compound machines in parallel are the ammeters and reverse current protection devices connected on the pole opposite to the equaliser connection Yes

Earth Testing, state means provided Earth Lamps Preference Tripping, state if provided Yes, and tested Yes

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes

make of fuses Arctic, are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 150 % FL current

and at what current do the reverse current protective devices operate 15 % FL Current Cables, are they insulated and protected as per Rule 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 6% BB volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends 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 any cables laid under machines or floorplates No, if so, are they adequately protected - State type of cables (if in conduit this should also be stated) in machinery spaces MICC, galleys MICC

and laundries MICC & VRIC State how the cables are supported or protected Clipped on solid or perforated steel tray, clipped on wood ground or direct to ships structure

Are all lead sheaths, armouring and conduits effectually bonded and earthed 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 Refrigerated chambers, are the cables and fittings as per Rule Yes

Have refrigeration fan motors been constructed under survey Yes and test certificates supplied Yes

Are the motors accessible for maintenance at all times Yes

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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position In emerg. generator room on boat dk. and from emerg. battery room in funnel

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches 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 Is an alternative supply provided. Yes

Secondary Batteries, are they constructed, fitted and adequately ventilated as per Rule. Yes, state battery capacity in ampere hours. 45 Where required to do so does it comply with 1948 International Convention. Yes

Lighting, is fluorescent lighting fitted. No If so, state nominal lamp voltage. - and compartments where lamps are fitted. -

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof. Yes

Searchlights, No. of None, whether fixed or portable. -, are they of the carbon arc or of the filament type. -

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 and placed in well-ventilated compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil. Yes

Are motors coupled to oil fuel transfer and 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. -

Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule. Yes

Lightning Conductors, where required are they fitted as per Rule. -

Ships carrying Oil having a Flash Point of less than 150° F. Have all the special requirements of the Rules for such ships been complied with. -, are all fuses of an Approved Cartridge Type. -, make of fuse. - Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships. - Are all cables lead covered as per Rule. -

E.S.D., if fitted state maker. Kelvin & Hughes location of transmitter and receiver. Frame space 97-98

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and 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	MAKER.	RATED AT				PRIME MOVER.	
			Kw. per Generator.	Volts.	Amps.	Revs. per Min.	TYPE.	MAKER.
MAIN Shore	4	Laurence Scott & Elee.	210	220	955	650	Oil	Ruston & Hornsby
	1	English Electric	30	220	136	1460	Electric	English Electric
	1	Campbell & Isherwood	30	220	136	1000	"	Campbell & Isherwood
EMERGENCY ROTARY TRANSFORMER	1	Scott	20	220	91	1500	Oil	Ruston & Hornsby

GENERATOR CABLES.

DESCRIPTION.	No. of	Kw.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
			No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	4	210	3	0.15	955	990	42 to 196	MI	Cu. Sheathed
EQUALISER	2		2	0.15	-	660	21 to 98	"	"
Shore Generator	2	30	1	0.04	135	150	80	"	"
" " Equaliser	1		1	0.0225	-	110	40	"	"
EMERGENCY GENERATOR	1	20	1	0.0225	91	110	20	"	"
ROTARY TRANSFORMER: MOTOR									
" " GENERATOR									

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.).

DESCRIPTION.		No. of	Kw.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
				No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
X	Cargo Refrig. & Hold Vent. Panel	3	0.15	700	990	200	MI		Cu. sheathed	
	Brine Heater Panel	1	0.04	146	150	200	"		"	
	Galley Panel	2	0.15	610	660	140	"		"	

DISTRIBUTION CABLES (to Section-Boards and Distribution-Fuse-Boards, etc.).

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
Navigation Instrument DB	1	200.007	20	45	300	MI	Cu. Sheathed
Radar & Gyro	1	200.007	30	45	200	"	"
Accom. Lighting	1	0.04	150	150	150	"	"
Bridge Dk. Heating	1	0.1	240	260	150	"	"
Main Dk. Heating	1	0.1	170	260	150	"	"
Workshop	1	20 0.01	30	55	60	"	"
Turning Gear DBs	1	0.01	60	70	100	"	"
Lifeboat winches	1	20 0.01	44	55	200	"	"
Water Boilers	1	0.01	60	70	200	"	"
Oil Purifiers DB	1	20 0.007	33	45	60	"	"
Food. Winch Panel	1	0.1	203	260	340	"	"
Aft " "	1	0.06	158	200	160	"	"
Galley Light & 3 kw. Boiler	1	20 0.003	15	15	60	"	"
Refrig. Cabinet DB	1	20 0.007	23	45	100	"	"
Domestic Pumps	1	20 0.007	18	45	60	"	"
R.R. & Tunnel Lights	1	20 0.007	20	45	80	"	"
Officers & Crew Shore Lighting	1	20 0.0225	47	85	120	"	"
Accom. Ventilation	1	0.04	146	150	200	"	"
Supply to Emerg. Sw. Bd.	1	0.06	150	200	240	"	"
Emerg. Lighting	1	7/044	27	31	100	VR	LC

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.		No.	B.H.P.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
				No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
F.W. Pumps		2	12	1	0.007	47	55	160	MT	Cu. sheathed
M.E. S.W. Pump		1	12	1	0.007	47	55	200	"	"
S.W. Cooling, Bilge & Ballast Pump		2	12	1	0.007	47	55	185	"	"
Submersible Bilge & Fire Pump		1	12	1	0.007	47	55	340	"	"
L.O. Pump		1	18	1	0.01	70	70	116	"	"
Air Compressor		2	16	1	0.01	63.5	70	100	"	"
O.F. Transfer Pump		1	3.5	1	0.003	15	15	185	"	"
G.S. Pump		1	12	1	0.007	47	55	150	"	"
Steering Gear		2	10	1	0.007	40	55	200	"	"
Windlass		1	31	1	19/064	122	143	120	VC	ICAB
Standby L.O. Pump		1	5	1	20 0.007	22	45	116	MI	Cu. Sheathed

NOTE.—Use Rpt. 13 Continuation Sheet if the above space is insufficient.

Mr. Cyren

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.

THE GRANGEMOUTH DOCKYARD COY. LTD.

Electrical Contractors,

Date

25th Aug 60

COMPASSES.

Have the compasses been adjusted under working conditions.

Yes

Builder's Signature.

Date

25th August 60

Have the foregoing descriptions and schedules been verified and found correct.

Yes

Is this installation a duplicate of a previous case.

No

If so, state name of vessel.

Plans. Are approved plans forwarded herewith.

No

If not, state date of approval.

23.6.60

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

Yes

General Remarks. (State quality of workmanship and materials, opinions as to class, etc.) The electrical installation has been fitted on board this vessel under Special Survey, tested under working conditions and found to be satisfactory. The materials used are of good quality and the workmanship is good. The installation is, in my opinion, suitable for a classed vessel.

Total Capacity of Generators

920 Kilowatts.

The amount of Fee

£148. --

When applied for,

6 SEP 1960

Travelling Expenses (if any) £

5. --

When received,

19

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

GLASGOW 6 SEP 1960

Assigned

SEE ACCOMPANYING MACHINERY REPORT



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Foundation

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9.9.60

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