

Rpt. 13.

No. 1770

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 19..... When handed in at Local Office 9. DEC. 1953..... Received at London Office 18 DEC 1953.....
 Port of Kobe
 No. in Survey held at Kobe, Japan Date, First Survey 25th July Last Survey 10th Oct., 1953.
 Reg. Book. (No. of Visits 10)
 on the M.V. "HIYEHARU MARU" Tons { Gross 7937.58 Net 4378.74
 Built at Kobe, Japan By whom built Mitsubishi H.I. Reorganized Ltd. Kobe S.Y. & Eng. Wks. Yard No. 855 When built 10.53
 Owners Shin Nihon Kisen K.K. Port belonging to Nishinomiya, Japan
 Installation fitted by Mitsubishi, Kobe S.Y. & Engine Works When fitted 10.53
 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. No Radar Yes

Plans, have they been submitted and approved Yes System of Distribution 3-phase, 3 wire Voltage of Lighting 110V
 Heating 110V Power 220V D. C. or A. C., Lighting A.C. Power A.C. If A. C. state frequency 60 Cycle

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 - and level compounded under working conditions -
 if not compound wound state distance between generators - and from switchboard - Are the generators arranged to run in parallel Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole -
 Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Yes Have certificates of test for machines under 100 kw. been supplied Yes and the results found as per Rule Yes

Position of Generators One main Generator-Starb'd, one main & auxiliary generator- Port in E.R.,
 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 Engine rooms

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 synthetic resin, 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 A triple pole linked air circuit breakers with over current trips and reverse current power protection.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit A triple pole linked Air-circuit breaker and/or a triple pole linked "NF DE-ION type circuit breaker

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 6
 ammeters 7 voltmeters 1 synchronising devices. For compound machines in parallel are the ammeters and reversed current protection devices connected on the pole opposite to the equaliser connection - Earth Testing, state means provided 3 x metal filament type lamps (earth lamps)

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes, make of fuses MITSUI "NOF" type, are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 25% overload, and at what current do the reversed current protective devices operate 15% reverse power

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule Yes

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 3V, are the ends of all cables having a sectional area of 0.01 square inch and above provided with soldering sockets Yes 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 Yes, if so, are they adequately protected Yes Are cables in machinery spaces, galleys, laundries, etc., lead covered - or run in conduit - Yes partly or of the "HR" type Yes State how the cables are supported or protected All cables other than flexible cables are securely fixed by non-rusting metal clips having smooth edges. Where exposed to rise of mechanical damage, they are protected by sheet iron plating or by steel conducts.

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

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LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return in 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.			
1 KW Main sender (short wave)	1	0.01	12	29✓	10	V	HRC
500 W sender (medium wave)	1	0.007	8	22✓	10	"	"
50 W Aux. Sender (" ")	1	0.003	2	10✓	10	R	"
Navigation light indicator	1	0.0045	1.82	15✓	70	"	"
2 SN for night lights	1	0.03	28.5	50✓	45	V	"
1 SD for house & boat dk lights.	1	0.0225	19.9	37✓	52	"	"
3 SD for bridge D'k & Upper d'k lights	1	0.03	30.4	57✓	50	"	"
3 SD for F'cle & poop d'k lights	1	0.01	6.4	29✓	50	"	"
2 SB for Alternative lights	1	0.04	24	70✓	45	"	"
3 SC for cargo lights	1	0.06	57.6	100✓	50	"	"
4 SE for engine room lights	1	0.06	53.4	100✓	10	"	"
2 SF for electric fans	1	0.01	10.5	29✓	50	"	"
5 HI for No.1 heaters	1	0.1	36	113✓	45	"	"
6 H2 for No.2 heaters	1	0.03	15	50✓	45	"	"

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	sq. in.		M.	V	
Steering gear	1	15	1 0.06	48	70✓	12.0	V HRC
Piston cooling & L.O. Pump	2	130	2 0.3	334	400✓	45	" "
Sea Water Circulating "	2	60	1 0.25	145	176✓	25	" "
O.F. booster Pump	2	4	1 0.007	10.5	19✓	35	" "
Fire & G.S. Pump	1	52	1 0.2	123	151✓	22	" "
O.F. Transfer Pu,p	2	20	1 0.06	50	70✓	32	" "
O.F. Combined pump	2	4	1 0.007	10.5	19✓	37	" "
O.F. Service Pump	1	2	1 0.0045	5.5	11✓	35	R "
L.O. " "	1	2	1 0.0045	5.5	11✓	33	" "
Bilge & Ballast Pu,p	1	52	1 0.2	123	151✓	23	V "
Fresh Water pump	1	5	1 0.007	12.5	19✓	23	" "
Bilge & Sanitary pump	1	10	1 0.0225	25	37✓	15	" "
E.R. Ventilating fan	2	8	1 0.0145	19.5	29✓	65	" "
O.F. valve cooling pump	2	4	1 0.007	10	19✓	15	" "
O.F. burning pump	1	1.5	1 0.0045	4.8	11✓	38	R "
Evaporator pump	1	3	1 0.0045	7.8	11✓	20	" "
Turning gear	1	16	1 0.04	59	785✓	45	V "
L.O. purifire	1	5	1 0.007	13	19✓	35	" "
O.F. " "	3	2	1 0.0045	5.5	11✓	25	R "
Exhaust fan	1	0.5	1 0.0045	1.4	11✓	40	" "
Ref. Compressor	2	40	1 0.15	96	125✓	22	V "
" "	1	7.5	1 0.0145	18	29✓	22	" "
" brine pump	3	5	1 0.007	12.3	19✓	22	" "
" "	1	2	1 0.0045	5.3	11✓	20	R "
" cooling pump	2	4	1 0.007	9.8	19✓	25	V "
" "	1	2	1 0.0045	5.3	11✓	40	R "
Charging M-G	1	10	1 0.0225	24.4	37✓	15	V "
O.F. clarifier	2	2	1 0.0045	5.5	11✓	19	R "

Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes. Emergency Supply, state position Boat deck battery room.

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 and fitted as per Rule Yes, are they adequately ventilated Yes. state battery capacity in ampere hours 2 sets x 24V x 200 AH, 1 set x 108V x 200 AH.

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

Searchlight Lamps, No. of 1, whether fixed or portable fixed, are they of the carbon arc or of the filament type 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 Yes. Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule Yes. Control Gear and Resistances, and they constructed and fitted as per Rule Yes. Lightning Conductors, where required are they fitted as per Rule -. 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 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 the cables lead covered as per Rule -. E. S. D., if fitted state maker Tokyo Keiki Seisakusho location of transmitter - & - and receiver Fr.No.139-140. 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.	
			Kilowatts per Generator.	Volts.	Amperes.	Revs. per Min.	TYPE.	MAKER.
MAIN	2	Mitsubishi Ele. Mfg. Co.	260	230	815	400	Diesel Eng.	Mitsubishi H.I. Reorganized, Kobe S. Y.
EMERGENCY ROTARY TRANSFORMER	1	Nishishiba Denki	100	230	314	720	" "	WKS. Daihatsu Kogyo K.K.

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return in 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 No. 1	260	5	0.25	815	880✓	25	V	HRC
" " EQUALISER No. 2	"	"	"	"	"	"	"	"
Auxiliary Generator	100	2	0.25	314	352✓	25	V	HRC
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

V= Varnished - cambric insulated cable
HRC= Polychloroprene compound - sheathed and steel wire braided
R= Vulcanized - rubber - insulated.

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

DESCRIPTION.	sq. in.						
Main SWBD - Aux. SWBD	1	0.25	70	176✓	55	V	HRC
Aux. SWBD - Wireless SWBD	1	0.04	21	54✓	20	"	"
" - Charging panel	1	0.0225	25	37✓	15	"	"
" - Gyro compass panel	1	0.0145	5	29✓	25	"	"
Main SWBD - D.F.B. for O.F. purifire	1	0.0225	16.5	37✓	40	"	"
- D.F.B. for refrigerator	2	0.25	265	352✓	37	"	"
- Transformer (primary side)	1	0.15	151	178✓	10	"	HR
Transformer (secondary side) - main SWBD	2	0.15	302	356✓	12	"	HRC
Main SWBD-shore connection box.	2	0.15	225	250✓	120	"	HRC

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.

S. Koseki
S. Koseki
Chief, Outfit Designing Section.

Electrical Contractors. Date

COMPASSES.

Have the compasses been adjusted under working conditions Yes

H. Ashima
S. Murakami
Director & General Manager

Builder's Signature. Date

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 6th April, 1953

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

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

The Electric Installation of this vessel has been constructed under special survey in accordance with the Rule, Approved Plans & Secretary's letters.

Material and workmanship are good.

The generators and motors, etc., have been examined under full loading condition to rule's requirements and found satisfactory.

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6/1/54*

Total Capacity of Generators Main Generator 2x260
Aux. Generator 100
620 Kilowatts.

The amount of Fee ... \$ 266.00. When applied for, DEC 10 1953
Travelling Expenses (if any) See Rpt. 1. : When received, 19

S. B. Johnson
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUESDAY 12 JAN 1954

Assigned See Rpt. 4b.

*K. J. J. J.
23.12.53*

(The Surveyors are requested not to write on or below the space for Committee's Minute.)