

30. AUG 1962

Rpt. 13

No. FE-10186

REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 1st Aug., 1962 When handed in at Local Office 1st Aug., 1962 Port of Kobe

No. in Survey held at Osaka, Japan Date, First Survey 20th March, 1962 Last Survey 14th July 1962
Reg. Book (No. of Visits 10)

on the Steel Single Screw m.s. "OKHOTSK" Tons Gross 11,057.68
Net 6,301.97

Built at Osaka, Japan By whom built Hitachi Shipbuilding & Eng. Co., Ltd., Sakurajima Shipyard Yard No. 3923 When built 7, 1962

Owners V/O "Sudoimport" Moscow, U.S.S.R. Port belonging to Vladivostok
Installation fitted by Hitachi Shipbuilding & Engineering Co., Ltd., Sakurajima Shipyard, Osaka When fitted 7, 1962

Is vessel equipped for carrying Petroleum in bulk - 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 Three phase, three wire insulated Voltage of Lighting 127 V

Heating 380V & 127V Power 380 V D.C. or A.C. Lighting A.C. Power A.C. If A.C. state frequency 50 c/s

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 - except the aux. & Emergency generator

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

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 Two main generators - port side, and one main generator: starboard side, on floor in engine room. Aux. generator - aft centre on floor 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 Forward centre on floor in engine 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 Phenolic resin bonded board, 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 Triple pole linked air circuit breaker with over current and reverse power protection and triple pole linked isolating knife switch

and the switch and fuse gear (or circuit breakers) for each outgoing circuit Triple pole linked "No-Fuse" breaker with over current protection.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 7 ammeters 5 voltmeters 1 synchronising devices. For compound machines in parallel are the ammeters and reverse current protection devices connected on the pole opposite to the equaliser connection - Earth Testing, state means provided Three lamps

with metallic filament & ground alarm Preference Tripping, state if provided Yes, and tested Yes relay

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes make of fuses Hitachi "TH" type, are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 138% for 20 sec., and at what current do the reverse ~~current~~ ^{power} protective devices operate -15% for 10 sec. Cables, are they insulated and protected as per Rule Yes

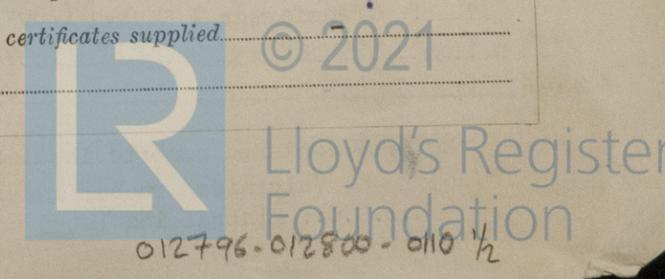
if otherwise than as per Rule are they of an Approved Type -, state maximum fall of pressure between bus bars and any point under maximum load 19.9 volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends Yes

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 Yes, if so, are they adequately protected Yes State type of cables (if in conduit this should also be stated) in machinery spaces V.L.C., R.L.C. & M.L.C. Galleys V.L.C. & R.L.C. and laundries R.L.C. State how the cables are supported or protected Generally clipped to steel hangers or saddles fitted directly to steel structure or wooden structure, and protected with heavy-gauge steel tubes or steel plates where necessary.

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 - (Provision store only)

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

Are the motors accessible for maintenance at all times -



Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes. Emergency Supply, state position One-48KW Emergency generator and switchboard = Emerg. generator room on boat deck port side.
 One-60AH secondary battery: Emerg. battery room on boat deck port side.

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 24V 120AHx2 (Internal Communication) Yes.

Lighting, is fluorescent lighting fitted Yes. Where required to do so does it comply with 1948 International Convention Yes.
 24V 60AHx1 (Lighting) Starting motor for Emerg. gen. engine
 24V 200AHx1 (Starting motor for Emerg. fire pump engine) If so, state nominal lamp voltage 127V and compartments where lamps are fitted. In front of manoeuvring handle of main engine and boiler gauge-board and behind main switchboard.

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

(including one Suez Canal search light)
 Searchlights, No. of 2, whether fixed or portable Fixed type, 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 None. 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.

Lighting 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 NEL-5 location of transmitter and receiver Starboard frame No.123
 V/O Sudoimport U.S.S.R.

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	Ampères	Revs. per Min.	TYPE	MAKER
MAIN	3	Hitachi Ltd.	320	400	577	500	Diesel	Hitachi S.B. & E.Co., Ltd., Innoshima S.Y.
Aux.	1	do.	120	400	227	500		Main Engine
EMERGENCY ROTARY TRANSFORMER	1	do.	48	400	86.6	1000	Diesel	Daihatsu Kogyo K.K.

GENERATOR CABLES

DESCRIPTION	No. of	Kw.	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (M)	INSULATION	PROTECTIVE COVERING
			No. in Parallel per Pole	Sectional Area or Sq. ins. or sq. mm.	In the Circuit	Rule			
MAIN GENERATOR	3	320	3	0.2	577	200x3	38, 27	V	LC
" " EQUALISER							21		
Auxiliary Generator	1	120	1	0.25	227	231	56	V	LC
EMERGENCY GENERATOR	1	48	1	0.06	86.6	91	15	V	LC

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.)

DESCRIPTION	No. of	Kw.	No. in Parallel per Pole	Sectional Area or Sq. ins. or sq. mm.	In the Circuit	Rule	APPROX. LENGTH (M)	INSULATION	PROTECTIVE COVERING
M.S.B. to E.S.B.	1	0.1	88.2	128	48	V	LC		
M.S.B. to Shore Source Connection Box	1	0.2	200	200	51	"	"		
M.S.B. to Transformer 20 KVx3 (400V)	1	0.1	87	128	10	V	LC		
" " " (133V)	2	0.15	257	166x2	10	V	LC		
E.S.B. to Navigation light indicator	1	0.007	2.4	27	47	V	LC (2 cores)		
L1 " " " "	1	0.007	2.4	27	19	V	LC (2 cores)		
E.S.B. " Wireless telegraph	1	0.007	9.1	27	46	V	LC		
" " " "	1	0.007	15.7	27	46	V	LC (2 cores)		
" " Transformer 7.5KVx3 (400V)	1	0.0225	32.5	51	10	V	LC		
" " " (133V)	1	0.1	95	128	10	V	LC		

NOTE: V: Vanished cambric insulated. L: Lead-alloy sheathed. M.S.B.: Main switchboard.
 R: Vulcanised rubber insulated. C: Steel wire braided. E.S.B.: Emergency switchboard.
 M.I.C.C.: Mineral insulated copper sheathed cable.

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

DESCRIPTION	No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (M)	INSULATION	PROTECTIVE COVERING
			In the Circuit	Rule			
M.S.B. to power section box P1	1	0.0225	36.1	51	38	V	LC
" P2	1	0.0145	31.3	38	38	"	"
" P3	1	"	17	"	29	"	"
" P4	1	0.2	114	200	29	"	"
" P5	1	0.0225	20	51	21	"	"
" P6	1	0.1	116	128	31	"	"
" P7	1	0.0225	44	51	13	"	"
" P8	1	"	43.9	"	37	"	"
" P9	1	0.0145	18	38	32	"	"
" P10	4	5.0mm ²	251.3	500	82	MICC	Copper sheathed (one core)
" P11	1	3.55 "	5.5	57	54	"	"
" P12	3	5.0 "	164.2	375	43	"	" (one core)
" P13	1	3.55 "	9.1	57	43	"	"
" P14	2	5.0 "	133.4	250	66	"	" (one core)
" P15	1	1.6 "	2.8	24	66	"	"
" P16	1	0.0225	40	51	48	V	LC
" P17	1	5.0mm ²	95	125	43	MICC	Copper sheathed (one core)
" P18	1	0.0225	32	51	19	V	LC
" P19	1	2.5 mm ²	25	38	116	MICC	Copper sheathed (one core)
" P20	1	3.55mm ²	39	57	53	"	"
" P21	1	0.0225	34	51	38	V	LC
" P22	1	0.06	14.1	91	43	"	"
" P23	1	0.06	66.7	91	35	"	"
" P24	1	0.1	93.5	128	30	"	"
" P25	1	0.0145	22	38	55	"	"
" to Lighting section box L1	1	0.1	90.7	128	24	"	"
E.S.B. to Charging board	1	0.0045	1.5	11	45	R	"

MOTOR CABLES

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	KW	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (M)	INSULATION	PROTECTIVE COVERING
			No. in Parallel per Pole	Sectional Area or Sq. ins. or sq. mm.	In the Circuit	Rule			
Turning gear	1	11/5.5	1	0.0145	23	38	37	V	LC
Air compressors	2	55	1	0.1	100	128	27	"	"
Fresh water cooling pump	1	30	1	0.04	57	70	30	"	"
Sea water cooling pump	1	"	1	0.04	"	"	29	"	"
Common reserve cooling pump	1	"	1	"	"	"	28	"	"
Lub. oil pump for main generator engine starting	1	0.4	1	0.003	0.9	7	20	R	"
Fresh water cooling pump (anchorage)	1	3.7	1	0.0045	8.5	11	27	"	"
Sea water cooling pump (")	1	"	1	"	8.25	"	27	"	"
Fresh water pumps	3	"	1	"	8.0	"	9, 10, 13	"	"
Vacuum pumps	2	2.2	1	0.003	5.3	7	5	"	"
General service & fire pumps	2	30	1	0.04	57	70	40, 33	V	"
Bilge/ballast pumps	2	"	1	"	57	70	11, 17	"	"
Bilge pump	1	7.5	1	0.007	16	19	15	"	"
Oily water supply pump for bilge separator	1	2.2	1	0.003	5.3	7	10	R	"
Sanitary pumps	2	3.7	1	0.0045	8.5	11	7.5	"	"
Lub. oil pumps	2	75	1	0.15	140	166	36, 29	V	"
Lub. oil pumps for turbo-charger	2	1.5	1	0.003	4	7	38, 34	R	"
Fuel oil transfer pump	1	7.5	1	0.007	16	19	11	V	"
Fuel oil transfer & service pump	1	1.5	1	0.003	4	7	30	R	"
Lub. oil purifiers	2	5.5	1	0.0045	11	11	17, 18	"	"
Fuel oil purifiers	4	11	1	0.0145	22	38	7, 9, 5, 9, 10, 5	V	"
Fuel valve cooling oil pumps	2	1.5	1	0.003	4	7	18, 22	R	"
Heavy oil circulating pumps	2	"	1	0.003	"	"	19, 23	"	"
Exhaust fan for purification apparatus	1	0.75	1	"	2	"	15	"	"
L.O. service pump	1	1.5	1	"	4	"	17	"	"
Engine Rm vent. fans	4	5.5	1	0.007	11	19	46, 37, 51, 5, 43	V	"
Brine circulat. P. for distilling plant	1	7.5	1	"	16	"	10	"	"
Condensate pump for distilling plant	1	0.75	1	0.003	2	7	9	R	"
Boiler water circulating pumps	2	3.7	1	0.0045	8.5	11	15, 14	"	"
Fuel oil burning pump for D.B.	2	0.75	1	0.003	2	7	15, 16	"	"
Forced draft fans for D.B.	2	1.1	1	"	3	"	11, 12	"	"
Oil pump for auto. combustion control	1	2.2	1	"	5.3	"	16	"	"
Steering gears	2	15	1	0.0145	30	38	90, 64	"	"
Windlass	1	51/51/24.5	1	5.0mm ²	100	125	125	MICC	Copper sheathed (one core)
Automatic mooring winches	4	38/19/3.8	1	4.5mm ²	75	100	125, 125, 78, 78	"	Copper sheathed (one core)

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

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.

M. Kamikawa Electrical Contractors. Date.....
 M. Kamikawa Chief of Electric Outfitting Section
 Hitachi Shipbuil, & Eng, Co., Ltd. Sakurajima Shipyard

COMPASSES

Have the compasses been adjusted under working conditions..... Yes

K. Sasaki Builder's Signature. Date.....
 K. Sasaki Director Yard Manager
 Hitachi Shipbuil, & Eng. Co., Ltd. Sakurajima Shipyard

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

Is this installation a duplicate of a previous case..... Yes If so, state name of vessel..... "ORENBURG"
 Plans. Are approved plans forwarded herewith..... No If not, state date of approval..... 24-10-61, 25-10-61
 14-4-61

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 equipment installed in this ship was examined and tested in accordance with the Society's Rules and the approved plans and found to be satisfactory.

The materials are good and sound.

The generators, motors, etc. were examined under full working conditions with satisfactory results.

Total Capacity of Generators..... 1128 Kilowatts.

The amount of Fee ... *¥257,600* When applied for, 19.....

Travelling Expenses (if any) £ When received, 19.....

M. Ishiwatari
 Surveyor to Lloyd's Register of Shipping
 M. Ishiwatari

Committee's Minute..... FRIDAY 21 SEP 1962

Assigned..... *See Rpt 46*

5m.3.58-Transfer. (MADE AND PRINTED IN ENGLAND)
 (The Surveyors are requested not to write on or below the space for Committee Minute.)

7.9.62

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