

REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 15th Oct., 1963 When handed in at Local Office 19 Port of Hiroshima

No. in Survey held at Hiroshima, Japan Date, First Survey 20th May Last Survey 3th Oct, 1963
Reg. Book (No. of Visits 7)

on the Single Screw Motor Tanker "LIKHO SLAVL" Tons 22371.10
Gross 22371.10
Net 15746.77

Built at Hiroshima, Japan By whom built Mitsubishi Shipbuilding & Eng. Co., Ltd., Hiroshima Works Yard No. 161 When built 1963-10

Owners V/O Sudimport U.S.S.R. Port belonging to Odessa

Installation fitted by Mitsubishi Shipbuilding & Engine Co. Ltd., Hiroshima Works When fitted 1963-9

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

Plans, have they been submitted and approved Yes. System of Distribution three phase three wires Voltage of Lighting 127V

Heating 380V & 110V 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 -

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 Main generator ; starboard forward & aft in engine room, port in engine room. Emergency generator; Emergency generator room on boat deck.

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 switchboard Port fwd lower floor in engine room, Emergency switchboard on boat deck.

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 Phenol 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 A triple pole linked air circuit breaker provided with over-current relay and reverse power relay

and the switch and fuse gear (or circuit breakers) for each outgoing circuit A triple pole linked "NO-FUSE" circuit breaker with over current trip

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

ammeters AC-4 voltmeters 1 set 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 insulation resistance meter 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 UTSUNOMIYA Electrical Mfg. Co., are all fuses labelled Yes. If circuit breakers are provided for the generators, at what overload do they operate Main generator at 120% load 16-20 sec. Emergency generator at 120% load 16 sec.

and at what current do the reverse current protective devices operate Main generator 48 KW 8 - 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 6 volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends -

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 BYC & RYC*, galleys BYC & RYC

and laundries RYC. State how the cables are supported or protected All cable secured by metal clips to galvanised perforated steel plate or steel hangers; cables on the fore and aft gangway run in galvanised steel pipe

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 - and test certificates supplied -

Are the motors accessible for maintenance at all times -

7/2/64

*BYC ... Butyl rubber insulated, polyvinyl chloride sheathed and steel wire braided cable.
RYC ... Rubber insulated polyvinyl chloride sheathed and steel wire braided cable.

- * 25.2V (200 AH) 2 sets (For lighting & communication)
- 25 V (100 AH) 1 set (For radio)
- 24 V (40 AH) 1 set (For telephone)
- 24 V (40 AH) 1 set (For fire alarm)
- 24 V (95 AH) 1 set (For starting of Emergency fire p.)
- 24 V (400 AH) 1 set (For starting of Emergency generator)
- 12 V (200 AH) 5 sets (For starting of life boat Engine & work boat)

(Battery)

Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule... Yes. Emergency Supply/state position Emergency generator & Emergency switchboard in emergency generator room boat deck.

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... See above * Where required to do so does it comply with 1948 International Convention... Yes.

Lighting, is fluorescent lighting fitted... Yes. If so, state nominal lamp voltage... 127 V and compartments where lamps are fitted... Main & Emergency switchboard, saloon, smoking room & crew's mess room.

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... 2, whether fixed or portable... fixed, are they of the carbon arc or of the filament type... filament

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... 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.

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... Yes. are all fuses of an Approved Cartridge Type... Yes. make of fuse... Electric Mfg. Co. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships... Yes. Are all cables lead covered as per Rule... Yes.

E.S.D., if fitted state maker... U.S.S.R. make location of transmitter and receiver... Engine room fwd. (Frame Nos. 52-53)

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	KVA RATED AT				TYPE	PRIME MOVER
			KVA per Generator	Volts	Ampères	Revs. per Min.		
MAIN	3	Mitsubishi Elect. Mfg. Co.	350	400	505	600	Diesel	Mitsubishi Nippon H.I. Ltd. Yokohama Shipyard & Engine Works
EMERGENCY ROTARY TRANSFORMER	1	- Do -	95	400	137	1000	Diesel	Kubota Iron Works

GENERATOR CABLES

DESCRIPTION	No. of	KVA	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return) Meter	INSULATION	PROTECTIVE COVERING
			No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands sq. mm.	In the Circuit	Rule			
MAIN GENERATOR	3	350	3	125 x 3	505	600	15, 30, 32.2	Butyl Rubber	Polyvinyl chloride sheathed steel wire braided.
" " EQUALISER									
EMERGENCY GENERATOR	1	95	1	80	137	150	7	"	"

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.)

DESCRIPTION	No. of	Sectional Area or No. and Dia. of Strands sq. mm.	In the Circuit	Rule	APPROX. LENGTH (lead plus return) Meter	INSULATION	PROTECTIVE COVERING
MSB to P2 (Purifier section board)	1	8	18.9	39	28	Butyl Rubber	Polyvinyl chloride sheathed steel wire braided.
" P8 (Machy. space vent. fan sec. board)	1	14	28	54	46	"	"
" P9 (Aft part vent. fan section board)	1	30	69.2	84	52	"	"
" P19 (Shore connection box)	1	125	200	200	65	"	"
" P28 (Emergency switch board)	1	100	137	175	56	"	"
" P29 (Boat winch section board)	1	38	97	99	42	"	"
" P35 (Machy. space vent. fan sec. board)	1	14	42	54	46	"	"
" P58 (Purifier section board)	1	8	18	39	21	"	"
" P59 (Hydrophor p. section board)	1	22	44	70	46	"	"
" P60 (Engineer's workshop sec. board)	1	14	20.7	54	23	"	"
" P61 (Electrician's store sec. board)	1	5.5	5.5	22	23	"	"
" P26 (Air cond. Ref. machine sec. board)	1	125	169	200	33	"	"
" P27 (Galley high power sec. board)	1	50	90	115	69	"	"
" P13 (Distilling plant sec. board)	1	8	13	39	34	"	"

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. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return) Meter	INSULATION	PROTECTIVE COVERING
			In the Circuit	Rule			
MSB to L3 (lighting section board SGLD-1)	1	50	64	115	31.5	Butyl Rubber	Polyvinyl Chloride sheathed steel wire braided.
" L4 (" SGLD-2)	1	50	57	115	37.5	"	"
" L7 (" SGLD-3)	1	22	25	70	56	Rubber	"
ESB to EL7 (" SELD-1)	1	22	46	70	21	"	"
" EL8 (" SELD-2)	1	22	39	70	41	"	"
" EL9 (" SELD-3)	1	22	36	70	27.5	"	"
MSB to L1 (lighting distribution board GLD-12)	1	14	32.5	54	9.5	"	"
" L2 (" GLD-11)	1	8	27	39	9	"	"
" L5 (" GLD-10)	1	5.5	5.1	31		"	"
ESB to EL2 (" ELD-1)	1	3.5	8.5	22	44	"	"
" EL4 (" ELD-2)	1	5.5	13.7	31	44	"	"
MSB to L14 (fan distribution FD-1)	1	22	23.5	70	45.5	"	"
" L10 (power distribution MP-1)	1	38	61	99	36	"	"
" L11 (" MP-2)	1	50	80	115		Butyl Rubber	"
" L12 (" MP-3)	1	14	29	54	49	Rubber	"
" L13 (" MP-4)	1	14	27	54	10.5	"	"
EBS to EL12 (127V Nautical instrument CD-1)	1	5.5		31	42	"	"
" EL13 (" CD-3)	1	5.5		31	67	"	"
" EL14 (127V Interior comm. system CD-4)	1	5.5		31	67	"	"
" EL16 (110V Nautical instrument CD-1)	1	5.5		31	41	"	"
" EL17 (" CD-3)	1	5.5		31	67	"	"
" EL18 (110V Interior Comm. system CD-4)	1	5.5		31	67	"	"
" EL19 (Cargo Oil system CD-2)	1	3.5		22	33	"	"

MOTOR CABLES

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	B.H.P. KW							
Jacket Cooling, Fresh W. P.	2	65	1	80	120	150	21, 25	Butyl Rubber	Polyvinyl Chloride sheathed steel wire braided.
Piston cooling fresh W. P.	2	45	1	38	88	99	31, 34	"	"
Lub. Oil pumps	2	50	1	50	93	115	50, 48	"	"
Fuel valve cooling F.W. P.	2	3.7	1	2	7.2	16	28, 27	Rubber	"
Make-up fresh water pump	1	1.1	1	2	2.5	16	27	"	"
Fire pumps	2	60	1	60	110	130	30, 33	Butyl Rubber	"
Cooling salt water P.	2	95	1	125	180	200	31, 33	"	"
Bilge & G. S. pump	1	26	1	14	48	54	30	"	"
Machinery space bilge P.	1	5.5	1	2	11	16	75	Rubber	"
Main pump room exhaust fan	1	19	1	8	38	39	17	Butyl Rubber	"
F.O. Booster pump	2	5.5	1	2	11.5	16	16, 17	Rubber	"
F.O. Burning pump	2	4.5	1	2	8.9	16	17, 17	"	"
Boiler water forced cir. p.	2	5.5	1	2	11	16	18, 19	"	"
Forced draft fan	2	40	1	30	71	84	59, 66	Butyl Rubber	"
Shaft turning gear	1	21/10.5	1	14/5.5	38/26	54/31	45	"	"
Ship service air comp.	1	19	1	8	38	39	30	"	"
Starting air compressor	2	75	1	125	200	200	36, 37	"	"
Control air compressor	1	15	1	8	32	39	80	"	"
Provision Ref. compressor	2	7.5	1	3.5	17	22	32, 36	Rubber	"
Provision Ref. Cool. W.P.	1	1.5	1	2	3.1	16	73	"	"
Air cond. Ref. compressor	2	37	1	30	70	84	13, 11	Butyl Rubber	"
Air cond. Ref. Cool. W.P.	1	15	1	5.5	29	31	36	"	"
Sprinkler	1	15	1	8	28	39	73	"	"
Hyd. P. for remote control	2	2.2	1	2	4.8	16	47, 46	Rubber	"
Steering engine (From MSB)	1	26	1	14	52	54	92	"	"
" (" ESB)	1	26	1	14	52	54	75	"	"
Machinery space Vent. fan	5	7.5/1.0	1/1	3.5/2	14/2.3	22/16	16, 16, 18, 18, 18	"	"
Fore pump room exhaust fan	1	5.5	1	2	11	16	175	Rubber	Polychloroprene sheathed steel wire braided & Polyvinyl chloride covered cable.
L.O. purifier	2	7.5	1	3.5	16.3	22	40, 38	Rubber	Polyvinyl chloride sheathed steel wire braided.
Diesel oil transfer p.	1	3.7	1	2	7.5	16	12.5	"	"
L.O. transfer p.	1	2.2	1	2	4.8	16	42	"	"
Boiler feeling p.	1	5.5	1	2	11.5	16	55	"	"
Condensate p.	1	3.7	1	2	7.5	16	14	"	"

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.

Y. Kaneda Electrical Contractors. Date.....
 Y. Kaneda
 General Manager, Hiroshima Works,
 Mitsubishi Shipbuilding & Engineering Co., Ltd.

COMPASSES

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

Y. Kaneda Builder's Signature. Date.....
 Y. Kaneda
 General Manager, Hiroshima Works,
 Mitsubishi Shipbuilding & Engineering Co., Ltd.

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..... -

Plans. Are approved plans forwarded herewith..... Yes. If not, state date of approval..... -

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 of this ship has been constructed and installed under special survey in accordance with the rules, approved plans and Secretary's letters.

The materials and workmanship are good.

The generators, motors, etc., have been examined under full working conditions to rule Requirement and found satisfactory.

Total Capacity of Generators 1145 KVA Kilowatts.

£272,250
 The amount of Fee ... £ : : When applied for, 19
 Travelling Expenses (if any) £ : : When received, 19

J.E. Radcliffe K. Okada
 Surveyor to Lloyd's Register of Shipping
 J.E. Radcliffe & K. Okada

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 FRIDAY 14 FEB 1964

Committee's Minute.....

Assigned *See Rpt. 1*

3m.5.60—Transfer. (MADE AND PRINTED IN ENGLAND) (The Surveyors are requested not to write on or below the space for Committee Minute.)

+KMS
20.12.63

