

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 5 APR 1955

Date of writing Report 10.3. 1955 When handed in at Local Office 19 Port of Helsingfors
 No. in Survey held at Helsingfors and at Vasa Date, First Survey 18.10.53 Last Survey 12.1.55
 g. Book. (No. of Visits 32)
 65471 on the Icebreaker "KAPITAN BELOUSOV" Tons Gross 3710 Net 1050
 Built at Helsingfors By whom built Wärtsilä-koncernen Ab, Sandvikens Skeppsdocka Yard No. 353 When built 1954
 Owners U.S.S.R. Port belonging to
 Installation fitted by Messrs. Oy Strömberg Ab 1954

Is vessel equipped for carrying Petroleum in bulk no Is vessel equipped with D.F. no E.S.D. yes Gy.C. no Sub.Sig. no Radar no
 These items will be fitted at Leningrad. When fitted

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 2x200 kW generators in forward engine room, 2x200 kW and 1x72 kW generators in after engine room. - The 200 Kw generators situated on ss and ps in each engine room. The 72 Kw Generator situated on ps.

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 in operating room on main deck amidship.

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 "Dead-front" switchboard

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 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 circuit-breaker with one pole as equaliser switch. fitted with overload, reverse-current, undervoltage and preference tripping devices.

nd the switch and fuse gear (or circuit breakers) for each outgoing circuit. Either double-pole circuit-breaker with overload trips or double-pole switch and fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule yes Instruments on main switchboard 8

mmeters 8 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

Ohmmeter 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

Type of fuses ASEA, are all fuses labelled yes If circuit breakers are provided for the generators, at what overload do they operate 150% full load

and at what current do the reverse current protective devices operate at 10% of main current for all generators. Cables, are they insulated and protected as per Rule yes

otherwise than as per Rule are they of an Approved Type yes, state maximum fall of pressure between bus bars and any point under maximum load less than 13 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 no, if so, are they adequately protected -

State type of cables (if in conduit this should also be stated) in machinery spaces VRI LC WB, galleys VRI LC WB

and laundries VRI LC WB State how the cables are supported or protected. Clipped to steel tray or ship's structure, protected with 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 -

Are 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 15 kW generator and switchboard in special compartment upper deck port side, also secondary battery on bridge deck starboard side.

Navigation Lamps, are they separately wired yes controlled by separate double pole switches and fuses. yes. Are the switches and fuses 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 ampere hours 150 AH at 10 hr. rate. Where required to do so does it comply with 1948 International Convention -.

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 4, whether fixed or portable fixed, are they of the carbon arc or of the filament type 1 arc, 3 filament.

Heating and Cooking, is the general construction as per Rule yes, are the frames effectually earthed yes, are heaters in 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 -, 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 MCN (Russia) location of transmitter and receiver between frames 60 and 61. Starboard.

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 ...	4	Cy Strömberg Ab	200	230	870	550	Diesel	Crichton-Vulcan
	1	"	72	230	313	1200	"	"
EMERGENCY ...	1	T.B. Thrige	15	220	68	1500	"	BUKH
ROTARY TRANSFORMER	1	Cy Strömberg Ab	30	230	130	1480	El. motor	Cy Strömberg Ab

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	200	4	185	870	940	160	V. R. I.	L. C. Steel wire
" " EQUALISER ...	2		2	185	-	470	160	"	" / braided
Harbour "	1	72	2	120	313	350	200	"	"
" " "	1		1	120	-	175	200	"	"
EMERGENCY GENERATOR ...	1	15	1	35	68	78	40	"	"
ROTARY TRANSFORMER: MOTOR ...	1	35	2	3x35	112	110	100	"	"
" " GENERATOR ...	1	30	2	95	130	150	65	"	"
" " "	1		1			300		"	"

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

DESCRIPTION.	No. of	Kw.	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
Emergency Lighting Switchboard	1		35	68	78	100	V. R. I.	L. C. Steel wire	
" Battery "	1		10	12	38	300	"	"	

Shore)
Supply

Rpt. 13 (cont).

DESCRIPTION.	No.	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.			
Lighting Distribution Boards.									
D. F. B. Motor Room, Aft	2	0,5	1	2,5	2	15,5	200	V. R. I.	Lead sheath.
" " " Ford.	2	0,5	1	2,5	2	15,5	200	"	"
" " " Engine " Aft	2	2	1	4	9	22,5	160	"	"
" " " " Fwd.	2	2	1	4	9	22,5	160	"	"
Main deck									
S. B. Crew's Cabin, Port Aft	1	3,5	1	6	16	29	160	"	"
" " " " S. B. Jwd	1	4	1	10	18	38	160	"	"
" F. B. " " S. B. Aft	2	1	1	2,5	5	15,5	200	"	"
" " " " Port Aft	1	0,8	1	2,5	3	15,5	200	"	"
" " " " S. B. Fwd	2	1	1	2,5	5	15,5	230	"	"
" " " " Port Fwd	1	1	1	2,5	5	15,5	230	"	"
S. B. Eng. Mach. Rooms. Oper. Room, Port	1	5	1	10	23	38	50	"	"
Upper deck									
S. B. Officer's Cabins, Port	1	3,8	1	6	17	29	200	"	"
" F. B. " " S. B. Fwd.	1	0,5	1	2,5	3	15,5	200	"	"
" " " " S. B. Jwd.	1	0,7	1	2,5	3	15,5	200	"	"
" " " " S. B. Fwd.	1	0,8	1	2,5	4	15,5	280	"	"
" " " " Port	1	0,8	1	2,5	4	15,5	280	"	"
" " " " Fwd.	1	0,8	1	2,5	4	15,5	280	"	"
" " " " Midsh.	1	2	1	6	9	29	130	"	"
" " " " Aft Port	1	0,7	1	1,5	3	15,5	130	"	"
" " " " Midsh.	1	0,7	1	1,5	3	15,5	130	"	"
" " " " Aft S. B.	1	0,7	1	1,5	3	15,5	130	"	"
Forecastle deck									
" F. B. Hospital Midsh. Aft	1	0,5	1	2,5	3	15,5	160	"	"
" B. Saloon	1	4,1	1	6	19	29	230	"	"
Captain's deck									
Captain's spaces	1	0,9	1	2,5	4	15,5	260	"	"
Bridge									
Navigation Room	1	0,5	1	4	3	22,5	300	"	"
Wheel House	1	1,7	1	4	8	22,5	330	"	"
Search Lights	1	5	1	6	22	29	330	"	"
Signal Lights	1	0,4	1	2,5	2	15,5	330	"	"

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 Dis. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
Power Distribution Boards:-							
After Motor Room	1	50	90	99	200	V.R.I.	L.C. Steel wire
After Engine Room: Purifiers	1	70	99	125	160	"	" " braid.
Various motors	1	70	95	125	160	"	" "
E.R. Vent. Fans	1	50	78	99	100	"	" "
Gen. Fans	1	150	177	205	130	"	" "
Forw. Engine Room: Purifiers	1	70	83	125	160	"	" "
Various motors	1	120	150	175	160	"	" "
E.R. Vent. Fans	1	50	78	99	100	"	" "
Gen. Fans	1	150	177	205	130	"	" "
Forward Motor Room	1	50	90	99	200	"	" "
Laundry	1	50	99	99	200	"	" "
Accommodation Ventilation 1	1	10	30	38	100	"	" "
" " 2	1	25	45	63	130	"	" "
Gyro	1	6	10	29	160	"	" "
Workshop	1	150	132	205	100	"	" "
Galley	1	95	130	150	130	"	" "
Winches	1	50	65	99	230	"	" "
Boiler Room Pumps	1	25	25	63	65	"	" "
Pantry	1	10	19	38	130	"	" "
Alarms, etc.	1	6	20	29	230	"	" "
Signal Lights	1	4	10	22.5	230	"	" "
Window Heaters	1	16	39	49	200	"	" "
(For lighting D.B.s, see Continuation Sheet attached).							

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	KW:HP	MAXIMUM CURRENT IN AMPERES.				INSULATION.	PROTECTIVE COVERING.
				In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATION.		
Steering Gear	2	33	1	95	125	150	260	V.R.I.	L.C. Steel wire braid.
Main Cooling Water Pumps	6	26	1	120	135	175	130	"	" "
Lub. Oil Pumps	4	38	1	150	194	205	130	"	" "
Deck Wash Pumps	3	17	1	50	89	99	200	"	" "
Propulsion Motor Fans, Aft	2	23	1	70	120	125	200	"	" "
" " , Forw.	2	23	1	70	120	125	200	"	" "
Propulsion Gen. Fans	6	11	1	25	59	63	65	"	" "
Auxiliary " "	4	3	1	4	17	23	100	"	" "
Heeling Pump-M/G Motor	1	165	1	4 x 185	750	940	65	"	" "
Fire Pumps	2	30	1	150	170	205	130	"	" "
Trimming Pump	1	63	2	120	315	350	160	"	" "
Aux. Cooling Water Pumps	2	11	1	25	50	63	100	"	" "
Bilge Pump	1	3.3	1	10	15	38	100	"	" "
Ballast Pump	1	11	1	25	50	63	65	"	" "
Compressor	1	7	1	16	40	49	65	"	" "
Oil Transfer	1	5.5	1	10	25	38	100	"	" "
Windlass Booster Motors	2	55	1	185	106	235	230	"	" "
Loading Winches	2	5.5	1	10	30	38	100	"	" "
Towing Winch	1	210	4	185	1000	940	160	"	" "
Propulsion Generator Exc.	4	17	1	50	90	99	200	"	" "
" Motor Booster	2	32	1	150	165	205	200	"	" "
Engine Room Vent. Fans	2	0.65	1	1.5	4	10	90	"	" "

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25/11/55

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. Stromberg Electrical Contractors. Date 17.3.1955

COMPASSES.

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

Wärtsilä-koncernen A/B
K. St. ... Builder's Signature. Date 17.3.55

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... 9.12.1954.

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 electric equipment of this vessel has been fitted on board under Special Survey, tried under full working conditions and found satisfactory.

Materials and workmanship are good.

Total Capacity of Generators... 887 Kilowatts.

The amount of Fee ... £ : : When applied for, ... 19

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

A. M. ... *B. Daffner*
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute... FRIDAY 29 APR 1955

Assigned... See Rpt. 4 b.

1m.754.—Transfer. (MADE AND PRINTED IN ENGLAND)
 (The Surveyors are requested not to write on or below the space for Committee Minute.)



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