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No. 6348

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

6 DEC 1946

Date of writing Report 29/11 When handed in at Local Office 10/12 Port of Stockholm

No. in Survey held at Stockholm Date, First Survey 29.3 Last Survey 13.11 19 46  
Reg. Book. (Number of Visits 6)

69522 on the Single Screw s.s. "BERKEL" Tons { Gross 1572  
Net 740

Built at Stockholm By whom built A/B Fimboda Varf Yard No. 332 When built 1946

Owners Stockholms Rederi A/B Svea Port belonging to Stockholm

Electrical Installation fitted by Allmänna Svenska Elektriska A/B Contract No. - When fitted 1946

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

Have plans been submitted and approved Yes System of Distribution two-conductor ins. Voltage of supply for Lighting 220

Heating - Power 220 Direct or Alternating Current, Lighting DC Power DC If Alternating Current state periodicity - Prime Movers,

has the governing been tested and found as per Rule when full load is suddenly thrown on and off Yes Are turbine emergency governors fitted with a

trip switch as per Rule - Generators, are they compound wound Yes, are they level compounded under working conditions Yes,

if not compound wound state distance between generators - and from switchboard - Where more than one generator is fitted are they

arranged to run in parallel Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

Negative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing - Have certificates of

test for machines under 100 kw. been supplied Yes and the results found as per rule Yes Are the lubricating arrangements and the construction

of the generators as per rule Yes Position of Generators In engine room on starboard side

is the ventilation in way of generators satisfactory Yes are they clear of inflammable material Yes, if situated

near unprotected combustible material state distance from same horizontally - and vertically -, are the generators protected from mechanical

injury and damage from water, steam and oil Yes, are the bedplates and frames earthed Yes and the prime movers and generators in metallic

contact Yes Switchboards, where are main switchboards placed In engine room on starboard side aft.

are they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam

and oil Yes, if situated near unprotected combustible material state distance from same horizontally - and vertically -, what insulation

material is used for the panels Steel front. Bakelite, if of synthetic insulating 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 frame effectually earthed Yes

Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses

to pilot and earth lamps, voltmeters, etc. Yes locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the "dead"

side of switches Yes Description of Main Switchgear for each generator and arrangement of equaliser switches Triple-pole circuit-

breaker with overload and reversed current trip, the third pole for equaliser connection

and for each outgoing circuit Double pole linked switch and double pole fuses.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 4

ammeters 3 voltmeters - synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection Yes Earth Testing, state means provided Ohm meter.

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Diazed SLP, are all fuses labelled as

per Rule Yes If circuit breakers are provided for the generators, at what overload current did they open when tested -, are the reversed current

protection devices connected on the pole opposite to the equaliser connection Yes, have they been tested under working conditions, and at what current

did they operate - Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule Yes

Cables, are they insulated and protected as per the appropriate Tables of the Rules 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, are the ends of all cables having a sectional area of 0.04

square inch and above provided with soldering sockets Yes Are paper insulated and varnished cambric insulated cables sealed at the ends Yes

with insulating compound - or waterproof insulating tape. 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 cables laid under machines or floorplates. Yes, if so, are they adequately protected. Yes Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes or run in conduit -. State how the cables are supported and protected. In machinery and tween deck spaces armoured cables clipped to bulkhead or perforated shell plates. In accommodation l.c. or l.c. steel wire braided cables clipped to bulkhead or run in conduit.

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

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 effectually bushed. Yes and with what material. Lead Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Yes Emergency Supply, state position - and method of control -.

Navigation Lamps, are they separately wired. Yes controlled by separate double pole switches. Yes 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 Secondary Batteries, are they constructed and fitted as per Rule. Yes, are they adequately ventilated. Yes what is the battery capacity in ampere hours. -

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

-, are all fittings suitably ventilated. -

are all fittings and accessories constructed and installed as per Rule. - Searchlight Lamps, No. of One, whether fixed or portable. Portable

-, are their fittings as per Rule. Yes Heating and Cooking, is the general construction as per Rule. -

are the frames effectually earthed. -, are heaters in the accommodation of the convection type. - Motors, are all motors constructed and installed as per Rule. Yes and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil. Yes, if situated near unprotected combustible material state minimum distance from same horizontally. - and vertically. - Are motors coupled to oil fuel transfer and unit pressure pumps capable of being stopped from a position accessible in the event of fire in the pump compartment.

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 services been supplied and the results found as per Rule. Yes Control Gear and Resistances, are they constructed and fitted as per Rule. Yes Lighting 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 the cartridge type. - are they of an approved type. - 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. - Spare Gear, if the vessel is for open sea service have spares been provided as per Rule. Yes, are they 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	RATED AT			Revs. per Min.	DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.			Fuel Used.	Flash Point of Fuel.
MAIN	1	85	230	370	575	2-cyl. steam engine	Remained 6.49	
	1	20	230	87	600	1-cyl. steam engine	replaced 4.5	
	2	45			500	2 cyl. steam engine		
EMERGENCY								
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load plus return) IN FT.	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	85	2	120	370	564	10	Paper	L.C. armoured
" " EQUALISER		1	120					" "
Main generator	20	1	70	87	200	20	"	" "
" " Equaliser		1	70					" "
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
AUX. SWITCHBOARDS AND SECTION BOARDS							
A lighting	1	4	10	20	70	Rubber	L.C. armoured
B "	1	6	5.5	29	6	"	" "
C "	1	6	15	29	20	"	" "
D "	1	6	22	29	30	"	" "
E fans	1	6	15	29	30	"	" "
F lighting	1	6	21	29	40	"	" "
G navigation	1	2.5	2.8	13	60	"	" "
H workshop	1	4	2	20	16	"	" "

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load plus return feet).	INSULATED WITH.	HOW PROTECTED.
	No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
WIRELESS	1	6	10	29	70	Rubber	L.C. armoured
NAVIGATION LIGHTS	1	1.5	1	7	120	"	" "
LIGHTING <del>Navigation</del>	1	1.5	6	7	-	"	" "
Log	1	1.5	6	7	14	"	" "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (load plus return) IN FT.	INSULATED WITH.	HOW PROTECTED.
			No. in Parallel Per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
Windlass	1	42	1	120	153	282	100	Paper	L.C. armoured
Winches No. 1 hatch	2	16	1	70	78	200	76	"	" "
" " 2 "	2	16	1	70	78	200	70	"	" "
" " 3 "	2	16	1	70	78	200	50	"	" "
" " 4 "	2	16	1	70	78	200	40	"	" "
Steering gear	1	8	1	25	29	102	80	"	" "
Capstan	1	16	1	35	63	126	80	"	" "
Hydrofor pumps	3	1.5	1	4	21	21	15	Rubber	" "
Engine turning gear	1	3	1	2.5	13	13	10	"	" "
Refr. machinery	1	1.8	1	2.5	7	13	6	"	" "
Grinder	1	0.4	1	1.5	2	7	4	"	" "
Lathe	1	1.5	1	1.5	7	7	4	"	" "
Drilling machine	1	0.4	1	1.5	2	7	8	"	" "
Lubr. oil purifier	1	0.5	1	1.5	2.8	7	22	"	" "
Fan winch	1	0.75	1	1.5	3.9	7	60	"	" "
Fan	1	0.25	1	1.5	1.6	7	16	"	" "
"	1	1.0	1	1.5	5	7	20	"	" "
"	1	0.5	1	1.5	2.8	7	18	"	" "

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.

STENSKA ELEKTROTEKNISKA AB  
 FILIALEN I STOCKHOLM

Electrical Engineers.

Date

11/12

COMPASSES.

Minimum distance between electric generators or motors and standard compass 14 metres

Minimum distance between electric generators or motors and steering compass 16 metres

The nearest cables to the compasses are as follows:—

A cable carrying 0.2 Ampères 6 feet from standard compass 2 feet from steering compass.

A cable carrying \_\_\_\_\_ Ampères \_\_\_\_\_ feet from standard compass \_\_\_\_\_ feet from steering compass.

A cable carrying \_\_\_\_\_ Ampères \_\_\_\_\_ feet from standard compass \_\_\_\_\_ feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power Yes

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted Yes

The maximum deviation due to electric currents was found to be \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the standard compass, and \_\_\_\_\_ degrees on \_\_\_\_\_ course in the case of the steering compass.

Builder's Signature.

Date

Is this installation a duplicate of a previous case Yes If so, state name of vessel S.S. "BIFROST"

Plans. Are approved plans forwarded herewith Yes If not, state date of approval 30.1.46

Certificates. Are certificates of test for motors engaged on essential 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 electrical equipment of this vessel has been installed under special survey. The materials and workmanships are good. On completion the equipment was run under working conditions with satisfactory results.

The equipment is in my opinion in good order subject to isolating switch being fitted to windlass motor at first convenient opportunity.

Noted from 3.1.47

Total Capacity of Generators 105 Kilowatts.

The amount of Fee ... 652 Skm. 17/1/47  
 When applied for, 3% 19.44  
 Travelling Expenses (if any) £ \_\_\_\_\_ : When received. 19.00

S. Sjödin

Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 10 JAN 1947

Assigned Su F.E. mchy. rph

5m.4.3p.—Transfer. (MADE AND PRINTED IN ENGLAND.)  
 (The Surveyors are requested not to write on or below the space for Committee's Minute.)