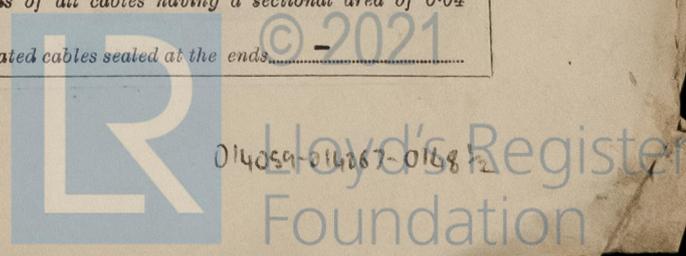


REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

29 AUG 1949

Received at London Office.....

Date of writing Report 22.8.49 When handed in at Local Office.....19..... Port of StockholmNo. in Survey held at Norrköping Date, First Survey 12.1 Last Survey 20.7 19 49
Reg. Book. (Number of Visits.....)95857 on the m.s. "NORDHEM" Tons { Gross 1041.93
Net 492.22Built at Norrköping By whom built AB Norrköpings Varv & Verkstad Yard No. 124 When built 1949Owners Rederi A/B Manhem Port belonging to StockholmElectrical Installation fitted by AEG, Norrköping Contract No. - When fitted 1949Is vessel fitted for carrying Petroleum in bulk Yes Is vessel equipped with D.F. Yes E.S.D. Yes Gy.C. No Sub.Sig. NoHave plans been submitted and approved Yes System of Distribution Parallel, const. press, two wire Voltage of supply for Lighting 110Heating 220 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 atrip 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 theyarranged to run in parallel Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive polenegative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing None Have certificates oftest for machines under 100 kw. been supplied Yes and the results found as per rule Yes Are the lubricating arrangements and the constructionof the generators as per rule Yes Position of Generators Port side in engine room-, is the ventilation in way of generators satisfactory Yes are they clear of inflammable material Yes, if situatednear unprotected combustible material state distance from same horizontally - and vertically -, are the generators protected from mechanicalinjury and damage from water, steam and oil Yes, are the bedplates and frames earthed Yes and the prime movers and generators in metalliccontact Yes Switchboards, where are main switchboards placed Port side in engine roomare they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steamand oil Yes, if situated near unprotected combustible material state distance from same horizontally - and vertically -, what insulationmaterial is used for the panels Lindanyo on steel front, if of synthetic insulating material is it an Approved Type -, if ofsemi-insulating material (slate or marble) are all conducting parts insulated therefrom as per Rule - Is the frame effectually earthed YesIs the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fusesto 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 For each generatora triple pole circuit breaker with overload- and reversed current protection.and for each outgoing circuit Double pole circuit breakers and a fuse on each pole.Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 4ammeters 4 voltmeters - synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to theequaliser connection Yes Earth Testing, state means provided 1 ohmmeter fitted.Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Yes, are all fuses labelled asper Rule Yes If circuit breakers are provided for the generators, at what overload current did they open when tested 10 amps, are the reversed currentprotection devices connected on the pole opposite to the equaliser connection Yes, have they been tested under working conditions, and at what currentdid they operate 15 amps. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule YesCables, 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 3 volts are the ends of all cables having a sectional area of 0.04square 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. - 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. All main and power cables lead covered and armoured, secured by clips.
Lighting cables in accommodations lead covered, secured by clips or run in conduit.

Are all lead sheaths, armouring and conduits effectually bonded and earthed. Yes. Refrigerated chambers, are the cables and fittings as per Rule. 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 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. None, are they adequately ventilated. -
 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. -

and where are the controlling switches fitted. - , 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. fixed
 - , are their fittings as per Rule. Yes. 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. 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. Yes

Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing. None. 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. 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. Yes, are all fuses of the cartridge type. Yes

are they of an approved type. Yes. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such

ships. Yes. Are the cables lead covered as per Rule. Yes. 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				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.	
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	1	30	225	133	1100	4 cyl. heavy oil engine	Heavy oil Above 150°F	
"	1	30	225	133	1100	" " "	" " "	
Rotary Transf. EMERGENCY	1	10	110	91	1600	1-220 volts motor	-	
ROTARY TRANSFORMER	1	10	230	43.5	1000	2 cyl. 4SCSA diesel	Heavy oil Above 150°F	
	1	2	110	17.5	1100	1-220 volts motor	-	

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULA-TED 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	30	1	120	133	175	5	Rubber	IC and armoured
" " EQUALISER		1	120	-	175	5	"	" " "
Main generator	30	1	120	133	175	5	"	" " "
" " equaliser		1	120	-	175	5	"	" " "
Rotary transformer: Motor	2.8	1	6	12.8	29	4	"	" " "
Generator	2.0	1	6	17.5	29	4	"	" " "
Harbour EMERGENCY GENERATOR	10	1	25	43.5	63	8	"	" " "
ROTARY TRANSFORMER: MOTOR	14	1	25	62	63	4	"	" " "
" " GENERATOR	10	1	50	91	99	4	"	" " "

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULA-TED 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							
Distr. board accom. main deck aft	1	4	8	21	30	Rubber	IC and armoured
" " accom. poop deck aft	1	2.5	4	13	30	"	" " "
" " main deck forw.	1	4	8	21	60	"	" " "
" " poop deck forw.	1	4	8	21	25	"	" " "
" " upper bridge	1	4	10	21	35	"	" " "
" " navigation lights	1	4	2	21	35	"	" " "
" " wireless	1	4	10	21	25	"	" " "
" " bridge deck	1	4	6	21	25	"	" " "
" " main deck	1	4	6	21	20	"	" " "

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	4	5	21	10	Rubber	IC and armoured
NAVIGATION LIGHTS	1	1.5	0.2	7	70	"	" " "
LIGHTING AND HEATING in accommodation	1	1.5	0.2	7	10	"	IC
Mast lights 110 v.	1	4	4	21	65	"	IC and armoured
Engine room	1	1.5	4	7	10	"	" " "
Engine room	1	1.5	3	7	15	"	" " "
Engine room top	1	1.5	2	7	10	"	" " "
Direction Finder	1	2.5	2	13	35	"	" " "
Radiophone	1	6	2	29	35	"	" " "
Freshwater heater 1.5 kW 220 V	1	2.5	7	13	8	Rubber	IC and armoured
Lubr. oil heater 6 " " "	1	25	32	63	15	"	" " "
Fuel oil heater 6 " " "	1	25	27	63	15	"	" " "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
✓ Cargo pump	1	30	1	120	117	175	10	Rubber IC and armoured
✓ Manoeuvring compressor	1	9	1	35	58	78	10	" " "
10 kW rotary transformer	1	10	1	25	62	63	5	" " "
2.8 kW rotary transformer	1	3	1	6	12.8	29	6	" " "
✓ Bilge pump	1	8	1	35	32	78	10	" " "
✓ Spare cool. water pump	1	8	1	35	32	78	12	" " "
✓ Lubr. & fuel oil pumps	1	9	1	35	35	78	20	" " "
✓ Steering engine	1	3	1	4	13	21	25	" " "
Freshwater pump	1	0.5	1	2.5	2.5	13	15	" " "
Hydrofor pump	2	2	1	2.5	8	13	20	" " "
DB burners, 110 volt	2	0.5	1	10	2	38	10	" " "
Domestic boiler burner 110 v.	1	0.2	1	2.5	2	13	15	" " "
Hot water pump 110 volt	1	0.2	1	1.5	2	7	15	" " "
Oil purifiers	2	2	1	2.5	10.5	13	20	" " "
Refr. compressor	1	2	1	6	12	29	20	" " "
Refr. cool. water pump	1	0.5	1	2.5	2.5	13	20	" " "
Lathe	1	0.5	1	2.5	3	13	12	" " "
Drilling machine	1	0.5	1	2.5	2.5	13	12	" " "
Sal log transformer	1	0.5	1	2.5	3	13	10	" " "
Engine room fan	1	2	1	2.5	8	13	30	" " "

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.

ELEKTRISKA AKTIEBOLAGET A. F. B.
 FÖRSTÄMME, NORRKÖPING

Electrical Engineers.

Date 20.7.1949

COMPASSES.

Minimum distance between electric generators or motors and standard compass 12 metres
 Minimum distance between electric generators or motors and steering compass 10 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.

ELEKTRISKA AKTIEBOLAGET A. F. B.
 FÖRSTÄMME, NORRKÖPING

Builder's Signature.

Date 20.7.1949

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 29.4.49

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 electric equipment of this vessel is installed under Special Survey in accordance with approved plans and Secretary's letters.

The materials and the workmanship are good.

The installation has been tested under working conditions, insulation resistance measured and found good.

Certificates in respect of main generators were forwarded with our letter of 15th January, 1949. Certificates in respect of steering engine motor, also bilge- and spare cooling water pump motors are attached hereto.

Total Capacity of Generators 82 ^{70 excluding motor-generators} Kilowatts.

The amount of Fee ... Kr. 765:--
 Travelling Expenses (if any) £ :
 When applied for, 22/8 1949
 When received, 19.....

Aspelin
 Surveyor to Lloyd's Register of Shipping.

FRI, 21 OCT 1949

Committee's Minute

Assigned In units see J.E. Rgt

501.4.33.—Transfer. (MADE AND PRINTED IN ENGLAND.)
 (The Surveyors are requested not to write on or below the space for Committee's Minutes.)



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