

Rpt. 13

C.K.

REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

No. 59236

30 NOV 1964

Date of writing Report 6-11-1964 When handed in at Local Office 19 Port of ROTTERDAM

No. in Survey held at Rotterdam Date, First Survey 18-9-1964 Last Survey 4-9-1964

Reg. Book

(No. of Visits 96)

on the "P O O L S T E R"

Tons { Gross
Net

Built at Rotterdam By whom built Rotterdamsche Droogdok Yard No. 307 When built 1964

Owners Ministerie van Defensie (Marine) Maatschappij Royal Netherlands Navy Port belonging to Den Helder

Installation fitted by Messrs. van Rietschoten & Houwens N.V. Rotterdam When fitted 1964

Is vessel equipped for carrying Petroleum in bulk yes/Is vessel equipped with D.F. yes E.S. Dyes Gy.C. yes Sub. Sig. no Radar yes

Plans, have they been submitted and approved yes System of Distribution 3 phase - 3 wire Voltage of Lighting 115

Heating 115 Power 440 D.C. or A.C. Lighting AC Power AC If A.C. state frequency 60 cycles

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 static excited and static regulated yes Voltage regulation within requirements yes

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 turbo generators: Engine Room 1st platform portside frame nr. 41. Diesel generator: J Deck portside frame nr. 168

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 turbo generator switchboard Special space separated from E.R. J Deck frame nr. 34. Diesel generator switchboard separated from diesel engine room J Deck frame nr. 162.

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 type switchboards 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 construction as per Rule, including locking of screws and nuts yes Description of Main Switchgear

for each generator and arrangement of equaliser switches 3-pole C.B.'s make Siemens type R 947 M III-1000

operated (hand operation possible). Each pole equipped with: a inst. acting magnetic relay and a second relay with a time delay of 400 m. sec. Moreover, the breakers are equipped with relays for warning in case of 0.9 I gen. nominal and 1.25 I gen. nominal

and the switch and fuse gear (or circuit breakers) for each outgoing circuit 3-pole C.B.'s make Siemens type R 947 M III -

1000 motor operated (hand operation possible) equipped with inst. acting magnetic relays and

a second magnetic relay with a time delay between 150-250 m. sec. and a third relay with time delay.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule yes Instruments on main switchboard turbo 11

ammeters 5 + 4 2 - 2/3 KW meter 6/8 cycle meters diesel 11

voltage meters 2 - 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 earth

indicating lamps for each switchboard connected to the busbars via single phase transformers/

Switches, Circuit Breakers and Fuses, are they as per Rule yes are the fuses an Approved Type yes

make of fuses Weber * Haze meyer & Siemens are all fuses labelled yes If circuit breakers are provided for the generators, at what

overload do they operate direct acting 8 KA with time delay 3.6KA and at what current do the reverse current protective

devices operate Turbo's 12 KW/10 sec. Diesel 30 KW/10 sec Cables, are they insulated and protected as per Rule yes or equivalent

if 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 < 5 % volts. Are all power 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 Bu-PCP-PVC & Sil-PCP, galleys MICC

and laundries MICC State how the cables are supported or protected cables clipped to perforated

plating or clipped to steel construction or clipped to wood grounds

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 -

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

Are the motors accessible for maintenance at all times -

F for each generator 2 sets

* See Lo. letter 15/4/64

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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule... yes... Emergency Supply, state position 135 each emergency battery-fed. lamps throughout the vessel. Each lamp has his own battery and charging arrangement. 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 3x160 Ah/19 cells 24 V. nickel iron. Where required to do so does it comply with 1948 International Convention. - 2x160 Ah/21 cells 24 V. nickel iron. Lighting, is fluorescent lighting fitted... yes... If so, state nominal lamp voltage 115 and compartments where lamps are fitted throughout the vessel. 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 - , whether fixed or portable - , are they of the carbon arc or of the 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. - 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 Weber & Hazemeyer Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships... yes... Are all cables yes covered as per Rule... yes... E.S.D., if fitted state maker Simrad type location of transmitter and receiver frame 105 - 106 510/9 D.N. 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	Amps. per Min.	Revs. per Min.	TYPE	MAKER
MAIN	2	Smit Slikerveer	620/775	450	990	1800	Turbo Werkspoor
	3	Smit Slikerveer	300/375	450	480	1200	Diesel Paxman
EMERGENCY ROTARY TRANSFORMER							

GENERATOR CABLES

DESCRIPTION	No. of	Kw.	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return feet)	INSULATION	PROTECTIVE COVERING
			No. in Parallel	Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	In the Circuit	Rule			
MAIN GENERATOR turbo driven	2	620	6	3 x 77	990	1080	7.5	Silicone glass tape	PCP *
" " EQUALISER									
" " diesel driven	3	300	4	3 x 70	480	580	11-13	Bu	PCP MWB PVC
EMERGENCY GENERATOR									
ROTARY TRANSFORMER: MOTOR									
" " GENERATOR									

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.)

DESCRIPTION									
Coupling cables between turbo-and diesel generator switchboards									
Starboard cables	7	3 x 70	1000	1015	136	Butyl	PCP MWB	PVC	
Port cables	7	3 x 70	1000	1015	131	"	"	"	"
supplied from Turbo generator switchboard									
Aux. switchboard ED central station	7	3 x 70	1000	1015	4	"	"	"	"
Aux. swbd. ED central station T III	7	3 x 70	1000	1015	5.50	"	"	"	"
Shore connection prt. & stbd. (frame 7)	7	3 x 70	1000	1015	63	"	"	"	"
Aux. swbd. ED central station T II	7	3 x 70	1000	1015	5	"	"	"	"
Aux. swbd. ED central station T I	7	3 x 70	1000	1015	75	"	"	"	"
H deck amid frame 110									
Supplied from Diesel generator switchboard									
Aux. swbd. diesel central station	7	3 x 70	1000	1015	11	"	"	"	"
Aux. swbd. J Deck frame 155	7	3 x 70	1000	1015	9	"	"	"	"
Shore connection fore, prt. & stbd. (frame 169)	7	3 x 70	1000	1015	18	"	"	"	"

* Cables make Johnson & Philips in accordance with Special Admiralty requirements See Lo. letter

Bpt. 13 (cont.)

s.s. "Poolster"

59236

DESCRIPTION	No. in Parallel	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (lead plus return feet)	INSULATION	PROTECTIVE COVERING	
		Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	In the Circuit	Rule	In the Circuit				
3 phase lighting transformer 460/117 V 30 KVA	1	3 x 16	40	58	128	Butyl	PCP	PVC	
DFB domestic service HH 2H2 H deck frame 135	1	3 x 25	48	77	37	"	"	"	
DFB power KD 1J2 J deck frame 163	1	3 x 70	126	145	17	"	"	"	
DFB air cond. LV 2H2 H deck fr. 132	2	3 x 50	148	230	45	"	"	"	
DFB vent. VE 1H2 H deck fr. 173	1	3 x 25	45	77	32	"	"	"	
DFB power KD 2E2 E deck fr. 127	1	3 x 70	85	145	58	"	"	"	
MOTOR CABLES									
Supplied from auxiliary switchboard D II ED central station J Deck frame 40									
Fuel oil cargo pump	1	175	2	3 x 50	200	290	10	Butyl	PCP PVC
Diesel oil cargo pumps	2	62	1	3 x 35	76.5	94	9 - 7	"	" "
Cerosine cargo pumps	2	65	1	3 x 35	74.5	94	7	"	" "
Petrol cargo pumps	2	65	1	3 x 35	74.5	94	7 - 9	"	" "
Drinkingwater cargo pump	1	45	1	3 x 16	54	58	8	"	" "
Fire pump	1	40	1	3 x 16	46	58	12	"	" "
Ballast-deckwash pump	1	160	2	3 x 50	196	230	9	"	" "
Supplied from auxiliary switchboard DFB DW 4H1									
Hydraulic pump Capstan	1	75	1	3 x 35	88	94	12	"	" "
Crane hoisting	1	6.5	1	3 x 2.5	8.7	18	35	"	" "
Crane slewing	1	6.5	1	3 x 2.5	8.7	18	35	"	" "
Supplied from auxiliary switchboard DFB DW1 H2									
Hydraulic pump windlass	1	125	1	3 x 95	147	175	10	"	" "
Hydraulic pump Capstan	1	28	1	3 x 10	34.5	44	6	"	" "
Supplied from auxiliary switchboard DFB MK 4L2 Engine Room frame 55 floor port									
Main fuel oil pump main boiler fore	1	26.5	1	3 x 10	33	44	27	"	" "
Cooling water pump	1	12	1	3 x 4	15.4	24	13	"	" "
Aux. condensate pump fore	1	12	1	3 x 4	15.65	24	10	"	" "
Aux. lub. oil pump turbo generator fore	1	2	1	3 x 2	3.1	18	13	MI	CC
Aux. lub. oil pump turbo pumps	2	1.7KW	1	3 x 2.5	3.15	18	16-17	Butyl	PCP PVC
Aux. lub. oil pump main feed pump	1	1.7KW	1	3 x 2.5	3.15	18	10	"	" "
Supplied from auxiliary switchboard DFB MK 4L7 Engine Room frame 30 floor starboard									
Turning gear	1	12	1	3 x 4	15.4	24	16	"	" "
Drinkingwater pump fore	1	10	1	3 x 2.5	12.3	18	20	"	" "
Hot water pump	1	0.75	1	3 x 2.5	1.3	18	13	"	" "
Lub. oil centrifugal pump	1	2.5	1	3 x 2.5	3.6	18	28	"	" "
Supplied from auxiliary switchboard DFB MK 4L5 Engine Room frame 48 floor starboard									
Boiler feed pump aux. blr.	1	10	1	3 x 2.5	12.3	18	13	"	" "
Control air compressor	1	20	1	3 x 5	28	30	13	MI	CC
Aux. boiler	1	-	1	3 x 6	15	31	15	Butyl	PCP PVC
Supplied from auxiliary switchboard DFB MK 4L3 Engine Room frame 55 floor starboard									
Main fuel oil pump main boiler aft	1	26.5	1	3 x 10	33	44	5	"	" "
Air condensate coolw. pump	1	12	1	3 x 4	15.4	24	13	"	" "
Aux. condensate pump aft	1	12	1	3 x 4	15.65	24	20	"	" "
Vent. fan engine room	1	10	1	3 x 3	13.1	23	19	MI	CC
Oil fuel transfer pump	1	11.5	1	3 x 4	15	28	17	Butyl	PCP PVC
Aux. lub. oil pump turbo generator aft	1	2	1	3 x 2	3.1	18	32	MI	CC
Vent. fan steam condensor	1	1.5	1	3 x 2.5	2.16	18	17	Butyl	PCP PVC
Aux. lub. oil pump main feed pump	1	1.7KW	1	3 x 2.5	3.15	18	11	"	" "
Aux. lub. oil pump feed pump	1	1.7KW	1	3 x 2.5	3.15	18	12	"	" "

Im. 10.61 T.

P.t.O.

MOTOR CABLES

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 Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
Supplied from auxiliary switchboard	DFB MK 4K1	Engine Room 1st platform	starboard frame 31				
Drinkingwater pump	1	10	1	3 x 2.5	12.3	18	15 Butyl PCP PVC
Control air compressor	1	20	1	3 x 5	28	30	17 MI CC
Feed pump steam convertor	1	10	1	2 x 2.5	12.3	18	12 Butyl PCP PVC
Hot freshwater pump	1	0.75	1	3 x 2.5	1.3	18	18 " " "
Supplied from auxiliary switchboard	DFB MK 4L1	Engine Room floor	starboard frame 63				
Aux. lub. oil pump turbo cargo pumps	2	1.7KW	1	3 x 2.5	3.15	18	7 " " "
Supplied from auxiliary switchboard	DFB VE 4J1	J Deck frame 42					
Vent. fan engine room	1	10	1	3 x 3	13.1	23	26 MI CC
Vent. fan boiler room	1	0.68	1	3 x 1.93	1.4	10	70 " "
Supplied from auxiliary switchboard	DFB VE 4E1	E Deck frame 65					
Vent. fan boiler room	1	3	1	3 x 1.93	4.3	18	25 " "

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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 Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit	Rule			
Supplied from auxiliary switchboard	T II	ED central station J	Deck frame 40				
Power DFB KD 2E2 E deck	1	3 x 70	85	145	90	Butyl	PCP PVC
3-phase lighting transformer							
460/117 V 10 KVA	1	3 x 6	15	31	14	"	" "
3-phase " " " " 30 KVA	1	3 x 16	40	58	108	"	" "
Power DFB MK 4 L 2 E.R.	1	3 x 48	91	140	30	Silicone	" "
Power DFB MK 4 L 7 E.R.	1	3 x 48	94	140	33	"	" "
Supplied from auxiliary switchboard	T III	ED central station J	Deck frame 40				
3-phase lighting transformer							
460/117 V. 30 KVA	1	3 x 16	40	58	43	Butyl	PCP PVC
Power DFB MK 4 L 3 E.R.	1	3 x 48	108	140	44	Silicone	PCP
Power DFB MK 4 K 1 E.R.	1	3 x 48	83	140	22	"	" "
Power DFB KD 4 F 1 F deck frame 68	1	3 x 25	35	77	42	Butyl	" PVC
Compass switchboard J deck frame 48	1	3 x 25	50	77	25	"	" "
Supplied from auxiliary switchboard	T IV	ED central station J	deck frame 40				
DFB air cond. LV 4E1 E deck frame 65	2	3 x 70	226	290	44	Butyl	" "
DFB domestic sew. HH 4G1 G deck fr. 54	2	3 x 50	160	230	32	"	" "
DFB deck winches DW 4H1 H deck fr. 1	2	3 x 50	118	230	37	"	" "
DFB vent. aft VE 4J1 J deck frame 41	1	3 x 35	69	94	12	"	" "
DFB power KD 4J1 J deck frame 41	2	3 x 50	168	230	16	"	" "
DFB helicopter start equipment							
VCT 4J1 J deck frame 55	1	3 x 50	80	115	27	"	" "
Degaussing J deck frame 52	1	3 x 70	100	145	26	"	" "
Supplied from auxiliary switchboard	D I	ED central station J	Deck frame 40				
DFB deck winches DW 1H2 H deck fr. 175	2	3 x 70	262	290	22	Butyl	PCP PVC
3-phase lighting transformer							
460/117 V. 30 KVA	1	3 x 16	40	58	30	"	" "

See Continuation sheet.

MOTOR CABLES

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	B.H.P.						
Supplied from auxiliary switchboard	T I	H deck frame 110						
Hydraulic pump tention 2 boatwinch	1	200	2	3 x 70	235	290	38	Butyl PCP PVC
Hydraulic pump fore	1	28	1	3 x 16	40	58	23	" " "
Hydraulic pump aft	1	28	1	3 x 16	40	58	51	" " "
El. toppingwinch stbd.	1	28	1	3 x 16	38	50	15	" " "
El. toppingwinch port	1	28	1	3 x 16	38	58	12	" " "
Cargo crane hoisting motor	1	6.5	1	3 x 2.5	8.7	18	16	" " "
Cargo crane slewing motor	1	6.5	1	3 x 2.5	8.7	18	16	" " "
Hydraulic pump tention & boatwinch	1	75	1	3 x 35	88	94	15	" " "
Hydr. pump tention & boatwinch	1	75	1	3 x 35	88	94	12	" " "
Cargo winch	1	75	1	3 x 35	88	94	12	" " "
Hydr. pump tention-winch	1	75	1	3 x 35	88	94	30	" " "
Hydr. pump tention-winch	1	75	1	3 x 35	88	94	34	" " "
Supplied from auxiliary switchboard	T II	ED central station J	Deck frame 40					
Bilge pump aft	1	16	1	3 x 6	19	31	63	Butyl PCP PVC
Forced draught fan boiler	1	185/45	2	3 x 48	216/58	280	40	Silicone PCP
Main condensate pump	1	35	1	3 x 14.5	43	65	27	" "
Lub. oil pump aft	1	40	1	3 x 14.5	46	65	27	" "
Auxiliary circulating pump	1	37	1	3 x 14.5	47.8	65	52	" "
Feeder one 2-steering gear motors	2	40	1	3 x 70	2 x 58	145	45	Butyl PCP PVC
Supplied from auxiliary switchboard	T III	ED central station J	Deck frame 40					
Main circ. pump port	1	100	1	3 x 77	120	190	24	Silicone PCP
Lub. oil pump fore	1	40	1	3 x 14.5	46	65	48	" "
Fire pump	1	40	1	3 x 14.5	46	65	40	" "
Bilge pump fore	1	16	1	3 x 6	19	31	15	Butyl PCP PVC
Main condensate pump stbd.	1	35	1	3 x 14.5	43	65	50	Silicone PCP
Forced draught fan stbd.	1	185/45	2	3 x 48	216/58	280	45	" "
Supplied from auxiliary switchboard	T IV	ED central station J	Deck frame 40					
Deck spray pump	1	150	2	3 x 48	182	280	37	Silicone PCP
Supplied from auxiliary switchboard	D I	ED central station J	Deck frame 40					
Feeder two 2-steering gear motors	2	40	1	3 x 70	2 x 58	145	145	Butyl PCP PVC
Salvage compressor	1	38	1	3 x 16	49	58	20	" " "

See Continuation sheet.

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

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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.

Van Rintschoten & Hoogwerf
Electrotechnische Maatschappij N.V.

Electrical Contractors.

Date 17 Nov. 1964

COMPASSES

Have the compasses been adjusted under working conditions. yes

D.P. DE ROTTERDAMSE DROOGDOCK M.I.

Builder's Signature.

Date 22.11.64

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 see Lo. ltrs.

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 of this ship has been installed under Special Survey in conformity with the Society's Rules and Regulations and found in accordance with the Secretary's letter and the approved plans or equivalent thereto.

The materials used are of a good quality and the design and workmanship are good.

On completion the equipment has been tried out under full working conditions and found satisfactory.

This equipment is in my opinion suitable for a classed ship.

Total Capacity of Generators 2140 Kilowatts.

The amount of Fee ... 2525.9

When applied for, 19.10.64

Travelling Expenses (if any) 891.7

When received, 19

Surveyor to Lloyd's Register of Shipping

H. van der Sluis.

Committee's Minute

WEDNESDAY 23 DEC 1964

Assigned

See Rpt. 1.



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