

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

26 JUL 1945

Received at London Office.....

Date of writing Report 3rd May 1945 When handed in at Local Office 15.5.45 Port of King's College - Lyne

No. in Survey held at Walsingham Date, First Survey Jan 3rd Last Survey May 9th 1945
Reg. Book. (Number of Visits 8)

on the S.S. 'OLNA' Tons { Gross 1266
Net 773

Built at Walsingham By whom built Swan Hunter & Wigham Ltd Yard No. 1689 When built 1945

Owners..... Port belonging to.....

Electrical Installation fitted by Swan Hunter & Wigham Ltd Contract No. 1689 When fitted 1945

Is vessel fitted for carrying Petroleum in bulk Yes 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 wire insulated Voltage of supply for Lighting 110

Heating 110 Power 220 Direct Yes Alternating Current, Lighting Yes Power Yes 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 Yes 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 Yes 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 Engine room, turbine flat, Emergency exit

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 Main: 2nd aft on gallery above turbo-generators

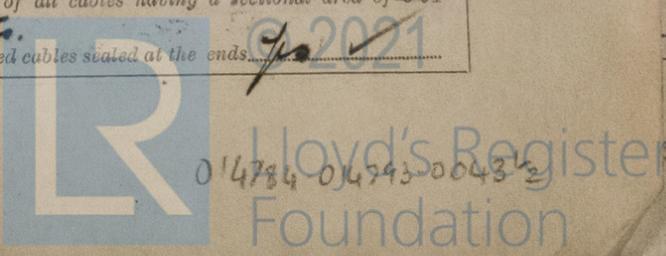
Board of turbo-generators room, midship deck, midship access are they in accessible positions, free from inflammable gases and acid fumes Yes are they protected from mechanical injury and damage from water, steam and oil Yes, if situated near unprotected combustible material state distance from same horizontally..... and vertically....., what insulation material is used for the panels Distichon 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 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 Turbo-generators: 3 pole CB with 4 pole tips on 2 poles, 4 pole overcurrent trip, 3rd pole for equaliser 110 volt generators + M/G generator 2 pole CB with 4 pole tips also 4 pole tips for diesel generators and for each outgoing circuit 2 pole CB with 4 pole tips or D.P. Knife switch and D.P. fuse, D.P. Knife switches on 110 volt circuits.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard Six ammeters Six 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 Earth lamps connected to E through switches of fuses

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an approved type Yes, 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 Yes 375A 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 Yes state maximum fall of pressure between bus bars and any point under maximum load..... are the ends of all cables having a sectional area of..... 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. 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. Are cables laid under machines or floorplates, if so, are they adequately protected. Are cables in machinery spaces, galleys, laundries, etc., lead covered. M.I.C.C. or run in conduit. State how the cables are supported and protected. M.I.C.C. cables clipped under fire and aft gangway with provision for expansion. L.C.C. cables run in pipes with expansion joints or duct for easy supply. L.C.C. M.I.C.C. surface wiring in messy areas. L.C. surface wiring in access.

Are all lead sheaths, armouring and conduits effectually bonded and earthed. 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, where unarmoured cables pass through beams, etc., are the holes effectively bushed and with what material. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. Emergency Supply, state position and method of control.

Navigation Lamps, are they separately wired, controlled by separate double pole switches and fuses. Are the switches and fuses in a position accessible only to the officers on watch. Is an automatic indicator fitted. Secondary Batteries, are they constructed and fitted as per Rule, 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. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present, if so, how are they protected. Flammable fittings installed in accessible unventilated spaces and where are the controlling switches fitted. In accommodation spaces above, are all fittings suitably ventilated.

are all fittings and accessories constructed and installed as per Rule. Searchlight Lamps, No. of 2x10", whether portable, are their fittings as per Rule. 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 and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil, 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. Control Gear and Resistances, are they constructed and fitted as per Rule. 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, 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. are they suitably stored in dry situations. Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory.

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	2	550	220	2500	1000	Steam Engines		
	1	60	110	546	600	Steam Engine		
	1	50	110	446	1000	Diesel Engine	Fuel oil above 150° F.	
EMERGENCY	1	50	110	446	1000	Diesel Engine	Fuel oil above 150° F.	
ROTARY TRANSFORMER	1	60	110	546	600	Electric Motor		

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead 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.			
MAIN GENERATORS	2 x 550	2	4 x 1/4"	2500	32	—	—	Copper Bar
" EQUALISER		1	4 x 1/4"	—	16	—	—	Copper Bar
Steam Engines	60	1	9 1/2 x 1/8"	546	788	72	V.C.	L.C.
Diesel Engines	50	1	6 1/2 x 1/8"	446	540	240	V.C.	L.C.
EMERGENCY GENERATOR	50	1	6 1/2 x 1/8"	446	540	54	V.C.	L.C.
ROTARY TRANSFORMER: MOTOR	91 H.P.	1	37 1/2 x 1/8"	345	885	150	V.C.	L.C.
" GENERATOR		1	9 1/2 x 1/8"	546	788	20	V.C.	L.C.

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead 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 ...							
Boat Dk. Swbd. Feed From M/G Set / Diesel Set	1	6 1/2 x 1/8"	—	540	180	V.C.	L.C.
Boat Dk. Swbd. Feed From M/G Set / Diesel Set	1	6 1/2 x 1/8"	—	540	180	V.C.	L.C.
Boat Dk. Swbd. Feed From M/G Set / Diesel Set	2	0.2	438	24296	24720	M.I.	C.C.
S.B.'A' Upper Dk. Aft Part	1	19 1/2 x 1/8"	89	135	185	V.C.	L.C.
S.B.'B' Top of E.R. Casing Aft	1	37 1/2 x 1/8"	240	246	150	V.C.	L.C.
S.B.'C' Peep Dk. Part	1	19 1/2 x 1/8"	82	135	180	V.C.	L.C.
S.B.'D' Turbo-Generator Flat	1	0.04	74	104	75	M.I.	C.C.
S.B.'E' Bridge Dk. (Off Midship Swbd.)	1	19 1/2 x 1/8"	130	135	160	V.C.	L.C.
S.B.'F' Workshop	1	19 1/2 x 1/8"	62	104	210	V.C.	L.C.
S.B.'G' R. Casing Aft (Off Boat Dk. Swbd.)	1	19 1/2 x 1/8"	67	135	165	V.C.	L.C.
S.B.'H' Bridge Dk. (Off Midship Swbd.)	1	7 1/2 x 1/8"	33	75	75	V.C.	L.C.
S.B.'I' Purifier Flat	1	19 1/2 x 1/8"	62	104	180	V.C.	L.C.
S.B.'L' Capt. Lobby (Off Midship Swbd.)	1	19 1/2 x 1/8"	56	104	120	V.C.	L.C.
S.B.'O' E.R. Casing Aft	1	19 1/2 x 1/8"	99	135	180	V.C.	L.C.

LIGHTING AND HEATING, ETC., CABLES.

DESCRIPTION.	No.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
WIRELESS	1	19 1/2 x 1/8"	45	135	75	V.C.
NAVIGATION LIGHTS	1	19 1/2 x 1/8"	24	135	75	V.C.
LIGHTING AND HEATING	All Supplies to W/T and to D.B.F. from Midship Swbd.					
D.B.A. A1, A2, A3, off S.B.'A'	(each)	7 1/2 x 1/8"	22	42	120	V.C.
Teater off S.B.'A'	1	7 1/2 x 1/8"	22	28	105	V.C.
D.B. C1, C2, off S.B.'C'	(each)	7 1/2 x 1/8"	28, 24	42	18, 60	V.C.
D.B. C3, C4, off S.B.'C'	(each)	7 1/2 x 1/8"	15, 17	57	180, 210	V.C.
D.B. D1, D2, D3, D4, D5, D6, off S.B.'D'	(each)	0.01	14, 13, 11	42	150, 210, 120	M.I.
D.B. E1, E2, E4, off S.B.'E'	(each)	7 1/2 x 1/8"	26, 39, 35	42	45, 18, 45	V.C.
D.B. E3 and Pantry Teater off S.B.'E'	(each)	7 1/2 x 1/8"	12, 23	28	18, 36	V.C.
D.B. E5	1	0.0225	11	75	480	M.I.
10" Sig. Rele. 2 in No. off S.B.'L'	(each)	7 1/2 x 1/8"	18, 75	42	120	V.C.
Cyrc. Compass	1	7 1/2 x 1/8"	20	42	90	V.C.
Radar	1	7 1/2 x 1/8"	37	57	120	V.C.
Battery Charging Panel (Off Midship Swbd.)	1	7 1/2 x 1/8"	25	57	60	V.C.
Shore Connection	1	37 1/2 x 1/8"	—	246	360	V.C.
220 Volt Testing Panel	1	7 1/2 x 1/8"	15	42	450	V.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATED WITH.	HOW PROTECTED.
Main Circulating Pumps	2	42/90	37 1/2 x 1/8"	53, 80	385	240, 270	V.C.
Reced Draught Fans	3	26	19 1/2 x 1/8"	107	135	240	V.C.
Fire and Bilge Pumps	2	15/27	19 1/2 x 1/8"	58, 106	135	390, 390	V.C.
Fresh Water Pump	1	3 1/4	7 1/2 x 1/8"	13, 6, 19, 8	28	114	V.C.
Reced Lub. Pumps	2	12.5	7 1/2 x 1/8"	48.5	57	294, 264	V.C.
Cooler Circ. Pump	1	5/8	7 1/2 x 1/8"	20, 7, 32, 8	42	270	V.C.
Turbo-Gear Circ. Pumps	2	7/9	7 1/2 x 1/8"	29, 7, 37, 2	42	129, 114	V.C.
Main Extraction Pumps	2	13.5	7 1/2 x 1/8"	52	75	270, 240	V.C.
Propeller Meter Fans	2	7.75/15	7 1/2 x 1/8"	31, 57	75	174, 144	V.C.
E.R. Vent Fans	4	4.5	7 1/2 x 1/8"	37	42	120, 120	V.C.
Boiler Rm. Vent Fans	2	4.5	7 1/2 x 1/8"	37	57	162, 186	V.C.
Lathe	1	3	7 1/2 x 1/8"	25.6	28	30	V.C.
Drilling M/G. off S.B.'C'	1	2	7 1/2 x 1/8"	17.6	28	30	V.C.
Grinder	1	2	7 1/2 x 1/8"	17.6	28	42	V.C.
Aft Boat Winches off S.B.'H'	4	2	7 1/2 x 1/8"	16.7	42	120, 120	V.C.
Mid. Boat Winches off S.B.'H'	2	2	7 1/2 x 1/8"	16.7	42	120, 120	V.C.
Lub. Oil Purifiers	2	3	7 1/2 x 1/8"	25.1	28	60, 60	V.C.
Lub. Oil Transfer Pump	1	1	7 1/2 x 1/8"	10.5	28	120	V.C.
Nal. Exhaust Fan off S.B.'L'	1	1.5	7 1/2 x 1/8"	13.4	28	12	V.C.
No. 3 Thermotank Fan	1	3	7 1/2 x 1/8"	26	42	150	V.C.
Nal. Supply Fan	1	3	7 1/2 x 1/8"	26	42	210	V.C.
No. 3 Exhaust Fan	1	1.5	7 1/2 x 1/8"	13.4	28	150	V.C.
Daugh Mixer	1	2	7 1/2 x 1/8"	17.6	28	150	V.C.
Sub-S.B.'A' Supp. W. Fan	1	1	7 1/2 x 1/8"	22.4	42	24	V.C.
Domestic F.W. Pump	1	3/4.5	7 1/2 x 1/8"	27, 29, 46	42	135	V.C.
Turning Meter	1	10	19 1/2 x 1/8"	80	87	120	V.C.
Nal. Thermotank Fan	1	4.5	7 1/2 x 1/8"	36.5	87	132	V.C.
Nal. Thermotank Fan off Mid. Swbd.	1	4.5	7 1/2 x 1/8"	36.5	87	108	V.C.

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.

For SWAN, HUNTER, & WIGHAM RICHARDSON, LTD.

[Signature]

Electrical Engineers.

Date 7th May 1945

COMPASSES.

Minimum distance between electric generators or motors and standard compass 12 feet

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

The nearest cables to the compasses are as follows:—

A cable carrying 0.9 Ampères 1 feet from standard compass 8 feet from steering compass.

A cable carrying 0.9 Ampères 8 feet from standard compass 1 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 *Nil* degrees on *any* course in the case of the

standard compass, and *Nil* degrees on *any* course in the case of the steering compass.

SWAN, HUNTER, & WIGHAM RICHARDSON, LTD. Builder's Signature. Date 7.5.45.

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 17/6/44

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 in accordance with the approved plans and modifications thereto recommended by the vessel's commission for Admiralty service. The materials used and the workmanship are good. On completion the equipment was run under working conditions with satisfactory results, the protective devices of the circuit breakers were adjusted and operated and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a closed vessel intended to carry oil having a flash point of less than 150°F.

Noted True 20.6.45

Form A.30—Transfer. (MADE AND PRINTED IN ENGLAND.) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

Total Capacity of Generators 1260 Kilowatts.

(Including 160kw. for Excitation at Electric Propulsion Machines)

The amount of Fee £ 72 : 15 : 29 MAY 1945

Travelling Expenses (if any) £

G. Anterson
Surveyor to Lloyd's Register of Shipping.

FRI. 6 JUL 1945

Committee's Minute

Assigned *See FF machy. rpt.*

