

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

3 DEC 1946

Received at London Office

Date of writing Report. 20<sup>th</sup> OCTOBER 1946 When handed in at Local Office. 9. 11. 1946 Port of NEWCASTLE-ON-TYNENo. in Survey held at WALLSEND. Date, First Survey (1945) Nov. 14 Last Survey Oct. 26<sup>th</sup> 1946  
Reg. Book. (Number of Visits. 17)

44931 on the S.S. "HELICINA" Tons Gross 12.167 Net 7.232

Built at WALLSEND. By whom built SWAN HUNTER &amp; WIGHAM RICHARDSON LTD. Yard No. 1711 When built 1946

Owners ANGLO-SAXON PETROLEUM CO. LTD. Port belonging to LONDON.

Electrical Installation fitted by SWAN HUNTER &amp; WIGHAM RICHARDSON LTD. Contract No. - When fitted 1946.

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 110/220 Direct or Alternating Current, Lighting D.C. Power D.C. 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 110V. No 220V. 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 TURBO FLAT.

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 NEAR TURBO GENERATORS

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 INTEROHM, 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 THREE

POLE C.B. WITH O/L TRIPS ON 2 POLES. R/C. AND OVERSPEED TRIPS. 3<sup>RD</sup> POLE FOR EQUALIZER. 110 VOLT GENERATOR

AND M/G. SETS 2 POLE C.B. WITH O/L TRIPS

and for each outgoing circuit 2 POLE C.B. WITH O/L TRIPS OR D.P. KNIFE SWITCH WITH A FUSE ON EACH POLE.

D.P.C.O. SWITCH WITH A FUSE ON EACH POLE ON 110 VOLT CIRCUITS.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES Instruments on main switchboard 6

ammeters 6 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

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 3400, are the reversed current

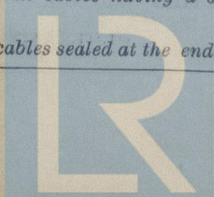
protection devices connected on the pole opposite to the equaliser connection YES, have they been tested under working conditions, and at what current

did they operate YES - 350 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 19.2 VOLTS ON 220 V. CIRCUITS. 6.6 VOLTS ON 110 V. CIRCUITS.

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. MAIN CABLES - LEAD COVERED ARMOURED AND BRAIDED CLIPPED TO STEEL TRAY UNDER FORE & AFT GANGWAYS

GENERATOR MAINS - COPPER BAR CLIPPED IN SINDANYO CLAMPS.

ACCOMMODATION CABLES - LEAD COVERED CLIPPED TO WOOD GROUNDS.

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. —, 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. YES

are all fittings and accessories constructed and installed as per Rule. YES. Searchlight Lamps, No. of —, whether fixed or portable. —, 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. — 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. — 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	2	550	220	2500	1000	STEAM TURBINE		
	1	60	110	546	600	STEAM ENGINE	X	260° K. Gasoline
EMERGENCY								
ROTARY TRANSFORMER	1	60	110	546		ELECTRIC MOTOR.	X	

#### 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 GENERATOR	550	2	4" x 1/4"	2500	—	50	COPPER BAR	✓
" " EQUALISER		1	4" x 1/4"	1250	—	25	COPPER BAR.	✓
GENERATOR	60	1	91-093	546	624	90	VC.	L.C.
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR	91 HP.	1	37-103	345	385	168	Y.C.	L.C.
" " GENERATOR	60 KWS.	1	91-093	546	624	120	Y.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							
SECT. BOX "A" SWITCHBOARD PLATFORM.	1	19-064	100	135	45	Y.C.	L.C.
SECT. BOX "B" TOP OF ENGINE CASING.	1	21-072	240	246	150	Y.C.	L.C.
SECT. BOX "C" UPPER DECK AFT. PORT PASSAGE	1	19-064	110.8	135	210	Y.C.	L.C.
SECT. BOX "D" TURBO MACH. ROOM	1	19-064	86.3	135	45	Y.C.	L.C.
SECT. BOX "E" MIDSHIP SWITCHBOARD ROOM.	1	19-064	100.9	135	18	Y.C.	L.C.
SECT. BOX "F" CHART ROOM	1	7-044	23	42	135	Y.C.	L.C.
SECT. BOX "G" WORKSHOP.	1	7-064	62	75	210	Y.C.	L.C.
SECT. BOX "H" TOP OF ENGINE CASING.	1	7-064	64	75	150	Y.C.	L.C.
SECT. BOX "J" MIDSHIP SWITCHBOARD ROOM.	1	7-064	64	75	18	Y.C.	L.C.
MIDSHIP SWITCHBOARD.	1	61-093	300	464	855	Y.C.	L.C. + L.C.A.B.
SUEZ CANAL PROJECTOR.	1	19-064	28	135	735	Y.C.	L.C. + L.C.A.B.
GYRO COMPASS CIRCUITS.	1	7-036	20	28	105	Y.C.	L.C.
SHORE CONNECTION BOX.	1	37-072	200	246	120	Y.C.	L.C.

#### LIGHTING AND HEATING, ETC., CABLES.

WIRELESS	1	7-052	30	57	150	Y.C.	L.C.
NAVIGATION LIGHTS							
LIGHTING AND HEATING D.B.D.I. E.R. & BOILER ROOMS.	1	7-044	19.2	42	105	Y.C.	L.C.
D.B. "D.2" ENGINE ROOM + BOILER ROOM.	1	7-044	12.1	42	195	Y.C.	L.C.
D.B. "D.3" ENGINE ROOM + BOILER ROOM.	1	7-044	12	42	15	Y.C.	L.C.
D.B. "D.4" ENGINE ROOM + BOILER ROOM	1	7-044	12.7	42	90	Y.C.	L.C.
D.B. "D.5" ENGINE ROOM + BOILER ROOM	1	7-044	19.7	42	210	Y.C.	L.C.
D.B. "D.6" ENGINE ROOM + BOILER ROOM.	1	7-044	10.6	42	195	Y.C.	L.C.
D.B. "C.1" POOP DECK PORT PASSAGE.	1	7-044	16.2	42	30	Y.C.	L.C.
D.B. "C.2" POOP DECK STARB. PASSAGE.	1	7-044	19.8	42	90	Y.C.	L.C.
D.B. "C.3" POOP DECK PORT PASSAGE.	1	7-044	22.3	42	120	Y.C.	L.C.
D.B. "C.4" UPPER DECK AFT. STB. PASSAGE	1	7-044	17	42	210	Y.C.	L.C.
D.B. "C.5" UPPER DECK AFT. PORT PASSAGE	1	7-044	17.5	42	81	Y.C.	L.C.
D.B. "E.1" UPPER BRIDGE DECK.	1	7-044	17.2	42	45	Y.C.	L.C.
D.B. "E.2" BRIDGE DECK PORT.	1	7-044	18	42	81	Y.C.	L.C.
D.B. "E.3" BRIDGE DECK PORT.	1	7-044	30	42	81	Y.C.	L.C.
D.B. "E.4" BRIDGE DECK STBD.	1	7-044	20.5	42	99	Y.C.	L.C.
D.B. "E.5" FORECASTLE	1	7-064	15.2	75	480	Y.C.	L.C.A.B.

#### MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.		No.	B.H.P.						
FORCED DRAUGHT FAN MOTORS	3	25	1	19-064	95	135	480	Y.C.	L.C.
FIRE & BILGE PUMP MOTORS	2	15/27	1	19-064	104	135	390	Y.C.	L.C.
FRESH WATER PUMP MOTOR	1	3/4.5	1	7-036	20	28	135	Y.C.	L.C.
FORCED LUB. OIL PUMP MOTORS	2	12.5	1	7-052	50	57	294	Y.C.	L.C.
COOLER CIRC. PUMP MOTOR	1	5/8	1	7-044	32	42	270	Y.C.	L.C.
TURBO-GENERATOR CIRC. PUMPS	2	7/9.5	1	7-044	40	42	135	Y.C.	L.C.
PROPELLING MOTOR FAN MOTORS	2	15	1	7-064	60	75	240	Y.C.	L.C.
MAIN EXTRACTION PUMP MOTORS	2	13.5	1	7-064	55	75	270	Y.C.	L.C.
MAIN CIRC. PUMP MOTORS	2	40/90	1	37-103	360	385	270	Y.C.	L.C.

TURNING GEAR MOTOR.	1	10	1	19-044	80	84	150	Y.C.	L.C.
GRINDING MACHINE MOTOR.	1	2	1	7-036	18	28	30	Y.C.	L.C.
DRILLING MACHINE MOTOR.	1	2	1	7-036	18	28	30	Y.C.	L.C.
LATHE MOTOR.	1	3	1	7-036	26	28	30	Y.C.	L.C.
BOILER ROOM VENT. FANS	2	4.5	1	7-052	40	54	180	Y.C.	L.C.
ENGINE ROOM VENT. FANS	4	4.5	1	7-052	40	54	105	Y.C.	L.C.
AFT BOAT WINCHES	2	4	1	7-044	32	42	150	Y.C.	L.C.
MIDSHIP BOAT WINCHES	2	4	1	7-044	32	42	159	Y.C.	L.C.
MIDSHIP ACCOM. VENT FANS.	2	5	1	7-052	40	54	150	Y.C.	L.C.
LUB. OIL TRANSFER PUMP MOTOR.	1	1	1	7-036	10	28	240	Y.C.	L.C.
LUB. OIL PURIFIER MOTORS.	2	3	1	7-036	26	28	150	Y.C.	L.C.
DOMESTIC FRESH WATER PUMP.	1	3/4.5	1	7-052	38	54	180	Y.C.	L.C.

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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.

For  
SWAN, HUNTER, & WICHAM RICHARDSON, LTD.

*[Signature]*

Electrical Engineers.

Date 2nd Nov 1946

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass 45 FEET FROM MIDSHIP VENT FAN MOTOR.

Minimum distance between electric generators or motors and steering compass 45 FEET " " " " "

The nearest cables to the compasses are as follows:—

A cable carrying 0.14 Ampères INSIDE ~~feet from~~ standard compass 6 feet from steering compass.

A cable carrying 0.14 Ampères 6 feet from standard compass INSIDE ~~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 EVERY course in the case of the standard compass, and NIL ~~for~~ degrees on EVERY course in the case of the steering compass.

SWAN, HUNTER, & WICHAM RICHARDSON, LTD.

*[Signature]*

Builder's Signature.

Date 2-11-46

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

Plans. Are approved plans forwarded herewith No If not, state date of approval         

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.

THE MATERIALS ARE OF GOOD QUALITY AND THE WORKMANSHIP IS SATISFACTORY.

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 CLASSED VESSEL INTENDED TO CARRY OIL HAVING A FLASH POINT OF LESS THAN 150°F.

Notes TRM 12.12.46

Total Capacity of Generators 1160 Kilowatts.  
INCLUDING 150KWS FOR EXCITATION OF ELECTRIC PROPULSION MACHINES.

LONDON Acc. £14-1-0 }  
The amount of Fee £ 40 : 5 : - }  
NEWCASTLE Acc. £ 96-4-0 }

When applied for,  
27 NOV 1946

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

*[Signature]*  
Surveyor to Lloyd's Register of Shipping.

FRL 20 DEC 1946

Committee's Minute         

Assigned See F.E. mch. rpt



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Lloyd's Register  
Foundation