

- T.2. TANKER - G.E. TYPE -

Rpt. 13.

No. 105405

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

9 JUL 1948

Received at London Office

Date of writing Report... 20th JUNE 1948 When handed in at Local Office... 24 JUN 1948 Port of... NEWCASTLE-ON-TYNE

No. in Survey held at... SOUTH SHIELDS Date, First Survey... 13/5/48 Last Survey... 16/6/48 Reg. Book... 37918 on the... S.S. "TURBINELLUS" (Number of Visits... 10)

Tons { Gross... 10640 Net... 6302

Built at... PORTLAND, OREGON By whom built... KAISER CO. INC. Yard No... When built... 1944

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

Electrical Installation fitted by... KAISER CO. INC. Contract No... When fitted... 1944

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... -

Have plans been submitted and approved... No System of Distribution... THREE WIRE - A.C. Voltage of supply for Lighting... 115

COOKING Heating... 115 Power... 450 Direct or Alternating Current, Lighting... A.C. Power... A.C. If Alternating Current state periodicity... 60 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... are they level compounded under working conditions... 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... Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing... No

Have certificates of test for machines under 100 kw. been supplied... No and the results found as per rule... Are the lubricating arrangements and the construction of the generators as per rule... YES

Position of Generators... IN ENGINE ROOM 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... NEAR GENERATORS - ON FORWARD END OF MAIN CONTROL PLATFORM

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... DEAD FRONT BOARD

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 RELEASE ON EACH LEG WITH TIME LAGS AND REVERSE CURRENT RELAYS.

and for each outgoing circuit... 3 POLE CIRCUIT BREAKER WITH 3 OVERLOADS.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... YES

Also 3 WATTMETERS AND 2 FREQ. METERS. Instruments on main switchboard... 15

ammeters... 7 voltmeters... ONE synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the equaliser connection... Earth Testing, state means provided... EARTH LAMPS

Switches, Circuit Breakers and Fuses, are they as per Rule... YES

are the fuses an approved type... AMERICAN PATTERN, 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... FULL LOAD, are the reversed current protection devices connected on the pole opposite to the equaliser connection... have they been tested under working conditions, and at what current did they operate... YES/10%

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... AMERICAN STANDARDS

state maximum fall of pressure between bus bars and any point under maximum load... No - ALL MECHANICAL

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

- S.S. "TURBINELLUS" -SURVEY OF ELECTRICAL INSTALLATION:-

THE NAMEPLATE PARTICULARS OF THE PROPULSION ALTERNATOR, MOTOR AND EXCITERS AND THE SHIPS SERVICE ALTERNATORS AND EXCITERS ARE AS FOLLOWS:-

PROPULSION ALTERNATOR:- GENERAL ELECTRIC - TYPE A.T.B.2 - SERIAL NO. 5424851 - 4925/5400 K.V.A. - 3600/3715 R.P.M. - FORM H.L. - 2300/2370 VOLTS - 1237/1315 AMPS - 100% P.F. - 3 PHASE - 60/62 CYCLES - 110 VOLTS EXCITATION - 162/167 AMPS EXCITATION. ONE OFF.

PROPULSION MOTOR:- GENERAL ELECTRIC - TYPE T.S.M.80 - SERIAL NO. 5690841 - 6000 H.P. - 90 R.P.M. - FORM H.L. - 2300 VOLTS - ARMATURE AMPS. 1150 - P.F. 1.0 - 4625 KVA. - 3 PHASE - 60 CYCLES - EXCITER VOLTS 120 - FIELD AMPS. 390 - CONT. RATING. 60°C. - MAX. S.H.P. 6800 AT 93 R.P.M. ONE OFF.

SHIPS SERVICE ALTERNATORS:- GENERAL ELECTRIC - TYPE A.T.B. SERIAL NOS. 5933302 AND 5933303. - 500 KVA. - 1200 R.P.M. - 450 VOLTS - 3 PHASE - 60 CYCLES - 642 AMPS - 400 KVA. - 0.8 P.F. - 120 EXCITATION VOLTS - 32 EXCITATION AMPS - FRAME NO. 976 - TEMPERATURE AT 500 KVA. - CONT. 40°C - ARMATURE 50°C. TWO OFF.

PROPULSION ALTERNATOR AND MOTOR EXCITERS:- GENERAL ELECTRIC - TYPE M.P.C. - SERIAL NOS. 2158234 AND 2158202 - 75 KWS - 1200 R.P.M. - FORM A.L. - 110 VOLTS - 682 AMPS - 120 EXCITATION VOLTS. - SHUNT WOUND - CONT. RATING - COMMUTATOR 55°C. - INSULATED WINDINGS AND ARMATURE CORE 40°C. BARE COPPER WINDINGS 55°C. - SHUNT FIELD 40°C. TWO OFF.

SHIP SERVICE ALTERNATOR EXCITERS:- GENERAL ELECTRIC - TYPE M.P.L.1. - 667. SERIAL NOS. 2158244 AND 2158189 - MODEL NO. 1750055 - 130 - FORM E.S. - 55 KWS - 1200 R.P.M. - COMPOUND WOUND - 458 AMPS - 120 VOLTS - CONT. RATING 40°C RISE TWO OFF.

EMERGENCY DIESEL DRIVEN ALTERNATOR:- IDEAL ELECT. AND MANUFACTURING CO. OHIO. - SERIAL NO. 124544 - 75 KWS - TYPE S.A. - 900 R.P.M. - 450 VOLTS - 93.4 KVA. - 60 CYCLES - 3 PHASE - 0.8 P.F. - 11.8 FIELD AMPS - 135 FIELD VOLTS. ONE OFF.

P. H. Stoker
14th June 1948.
SURVEYOR IN LLOYD'S REGISTER.
NEWCASTLE-ON-TYNE.

with insulating compound. YES 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. YES. State how the cables are supported and protected. ALL CABLES - LEAD COVERED AND ARMOURD RUN ON "U" BRACKETS

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 effectively bushed. YES and with what material. NO UNARMOURD CABLE ON SHIP. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule. YES. Emergency Supply, state position. IN SEPARATE HOUSE ON POOP and method of control. BATTERY AUTOMATIC START.

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. 58.

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. YES, if so, how are they protected. FLAMEPROOF FITTINGS - "WIGAN" PATTERN.

and where are the controlling switches fitted. IN ACCOMMODATION MIDSHIPS IN ALLEYWAY, are all fittings suitably ventilated. YES, are all fittings and accessories constructed and installed as per Rule. YES. Searchlight Lamps, No. of ONE, whether fixed or portable. PORTABLE., are their fittings as per Rule. YES. 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. YES and vertically. YES. 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. NO. Have certificates of test for motors under 100 BHP intended for essential services been supplied and the results found as per Rule. NO. Control Gear and Resistances, are they constructed and fitted as per Rule. YES. Lightning Conductors, where required are they fitted as per Rule. YES. 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 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.	Amps.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.
MAIN	2	400	450V. 3Ø	642	1200	TURBINE	-	-
"	1	75	60V. 3Ø	120.5	900	DIESEL ENGINE	OIL.	ABOVE 150°F.
PROPULSION EXCITERS	2	75	110	682	1200	TURBINE.	-	-
SHIPS AUX. EXCITERS	2	55	120	458	1200	TURBINE.	-	-
ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (Feet)	INSULATED WITH.	HOW PROTECTED.
		No. in Parallel Per Pole.	Sectional Area Sq. Ins.				
MAIN GENERATOR	400	1	0.7854	642	705	30	V.C. L. + A.
EMERGENCY GENERATOR.	75	1	0.0829	120.5	158	30	V.C. L. + A.
PROPULSION GEAR EXCITERS.	75	1	0.7854	682	705	35	V.C. L. + A.
SHIPS AUX. EXCITERS.	55	1	0.5890	458	582	40	V.C. L. + A.
EMERGENCY GENERATOR							
ROTARY TRANSFORMER: MOTOR							
" " GENERATOR							

MAIN DISTRIBUTION CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT		APPROX. LENGTH (lead plus return feet).	INSULA- TED WITH.	HOW PROTECTED.	
	No. in Parallel Per Pole.	Sectional Area or No. and Size of Strands. Sq. ins. or sq. mm.	In the Circuit.	A.M.E. Rule.				
AUX. SWITCHBOARDS AND SECTION BOARDS ...								
WORKSHOP POWER SECTION BOX.	1	0.0082	9.0 ✓	25.5	100	V.C.	L+A.	3 CORE.
GALLEY POWER TRANSFORMER 15 KVA.	1	0.0521	34.0 ✓	83	150	V.C.	L+A.	3 CORE.
MIDSHIP POWER PANEL.	1	0.0051	4.4 ✓	18.5	220	V.C.	L+A.	3 CORE.
LIGHTING TRANSFORMERS.	1	0.0521	34 ✓	83	20	V.C.	L+A.	3 CORE.
DOMESTIC REFRIG. PANEL.	1	0.0051.	12 ✓	18.5	150	V.C.	L+A.	3 CORE.
AUX. SWITCHBOARD.	1	0.013	20 ✓	34.5	120	V.C.	L+A.	3 CORE.
EMERGENCY SWITCHBOARD TIE.	1	0.0829.	100 ✓	113	70	V.C.	L+A.	3 CORE.
SHORE CONNECTION.	1	0.51	—	466	150	V.C.	L+A.	3 CORE.

LIGHTING AND HEATING, ETC., CABLES.

WIRELESS 110 VOLTS. D.C.	1	0.0261.	45.5 ✓	42	250	V.C.	L+A.	2 CORE.
NAVIGATION LIGHTS	1	0.0082	2 ✓	34	250	V.C.	L+A.	2 CORE.
LIGHTING AND HEATING								
MIDSHIPS AND FORECASTLE LIGHTING.	1	0.0829	50 ✓	113	230	V.C.	L+A.	3 CORE.
POOP AND BOAT DECK LIGHTING.	1	0.0261	3 ✓	54.5	—	V.C.	L+A.	3 CORE.
UPPER DECK LIGHTING.	1	0.0521	3 ✓	83	50	V.C.	L+A.	3 CORE.
ENGINE ROOM LIGHTING.	1	0.0521	25 ✓	83	20	V.C.	L+A.	3 CORE.
BOILER ROOM LIGHTING.	1	0.0206	15 ✓	46.5	60	V.C.	L+A.	3 CORE.
BATTERY CHARGING.	1	0.003.	10 ✓	13	40	V.C.	L+A.	3 CORE.
EMERGENCY GENERATOR ROOM LIGHTING.	1	0.003.	1 ✓	13	20	V.C.	L+A.	3 CORE.

MOTOR CABLES

MAIN SHAFT TURNING GEAR.	1	5	1	0.0051	6.9 ✓	18.5	110	V.C.	L+A.	3 CORE.
COMBUSTION CONTROL COMPRESSION	1	15	1	0.013	19 ✓	34.5	15	V.C.	L+A.	3 CORE.
CARGO PUMP MOTORS	3	200	1	0.3535	249 ✓	308	30	V.C.	L+A.	3 CORE.
CARGO STRIPPING PUMP MOTORS.	2	50	1	0.0521	63 ✓	83	30	V.C.	L+A.	3 CORE.
PUMP ROOM EXHAUST FAN MOTOR.	1	1.5	1	0.0051	2.4 ✓	18.5	36	V.C.	L+A.	3 CORE.
WIRELESS M/G. 450V. A.C. / 110V. D.C.	1	7.5	1	0.0051	10 ✓	18.5	16	V.C.	L+A.	3 CORE.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.								
MAIN CIRCULATING PUMP MOTOR.	1	125	1	0.2356	156 ✓	234	90	V.C.	L+A.	3 CORE.
FIRE AND BUTTERWORTH PUMPS	2	50	1	0.0521	63 ✓	83	130	V.C.	L+A.	3 CORE.
STEERING GEAR MOTORS.	2	30	1	0.0261	38 ✓	54.5	150	V.C.	L+A.	3 CORE.
LATHE MOTOR	1	2	1	0.0051	3.1 ✓	18.5	10	V.C.	L+A.	3 CORE.
DRILL MOTOR.	1	1	1	0.0051	1.7 ✓	18.5	20	V.C.	L+A.	3 CORE.
GRINDER MOTOR.	1	3	1	0.0051	4.4 ✓	18.5	20	V.C.	L+A.	3 CORE.
MAIN CONDENSATE PUMP MOTORS	2	25	1	0.0206	32 ✓	46.5	60	V.C.	L+A.	3 CORE.
AUX. CIRC. PUMP MOTOR.	1	30	1	0.0261	38 ✓	54.5	80	V.C.	L+A.	3 CORE.
AUX. CONDENSATE PUMP MOTOR.	1	15	1	0.013	19 ✓	34.5	70	V.C.	L+A.	3 CORE.
COOLER CIRC. PUMP MOTOR	1	10	1	0.0082	13 ✓	25.5	65	V.C.	L+A.	3 CORE.
FUEL OIL TRANSFER PUMP MOTOR.	1	20	1	0.013	26 ✓	34.5	45	V.C.	L+A.	3 CORE.
FUEL OIL SERVICE PUMP MOTORS	2	7.5	1	0.0051	10 ✓	18.5	50	V.C.	L+A.	3 CORE.
LUB. OIL SERVICE PUMP MOTOR.	1	5	1	0.0051	6.9 ✓	18.5	60	V.C.	L+A.	3 CORE.
LUB. OIL SEPERATOR PUMP MOTOR.	1	2	1	0.0051	3.1 ✓	18.5	90	V.C.	L+A.	3 CORE.
FORCED DRAUGHT FAN MOTORS.	3	50	1	0.0521	63 ✓	83	170	V.C.	L+A.	3 CORE.
EVAPORATOR FEED PUMP MOTOR	1	1	1	0.0051	1.7 ✓	18.5	90	V.C.	L+A.	3 CORE.
AFT. ACCOMM. VENT. FAN MOTORS	2	1 1/2	1	0.0051	2.4 ✓	18.5	150	V.C.	L+A.	3 CORE.
FRESH WATER PUMP MOTORS	2	2	1	0.0051	3.1 ✓	18.5	110	V.C.	L+A.	3 CORE.
ENGINE + BOILER ROOM VENT FANS.	4	2	1	0.0051	3.1 ✓	18.5	150	V.C.	L+A.	3 CORE.
DOMESTIC REFRIG. COMPRESSOR.	1	7 1/2	1	0.0051	10 ✓	18.5	150	V.C.	L+A.	3 CORE.
DOMESTIC FRIG. COND. CIRC. PUMP.	1	1	1	0.0051	1.7 ✓	18.5	30	V.C.	L+A.	3 CORE.
ATMOSPHERIC DRAIN + RECEIVER PUMP	1	2	1	0.0051	3.1 ✓	18.5	90	V.C.	L+A.	3 CORE.
SHIPS SERVICE AIR COMPRESSOR	1	5	1	0.0051	6.9 ✓	18.5	15	V.C.	L+A.	3 CORE.
SALT WATER SERVICE PUMP MOTOR	1	7 1/2	1	0.0051	10 ✓	18.5	135	V.C.	L+A.	3 CORE.
SANITARY PUMP MOTOR	1	7 1/2	1	0.0051	10 ✓	18.5	130	V.C.	L+A.	3 CORE.
ENGINE ROOM BILGE PUMP MOTORS.	2	10	1	0.0082	13 ✓	25.5	130	V.C.	L+A.	3 CORE.
DRINKING WATER PUMP AFT.	1	1	1	0.0051	1.7 ✓	18.5	130	V.C.	L+A.	3 CORE.
MAIN MOTOR COOLING FAN	1	15	1	0.013	19 ✓	34.5	65	V.C.	L+A.	3 CORE.
TURBINE TURNING GEAR MOTOR	1	3	1	0.0051	4.4 ✓	18.5	20	V.C.	L+A.	3 CORE.

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.

Electrical Engineers.

Date

COMPASSES.

Minimum distance between electric generators or motors and standard compass

Minimum distance between electric generators or motors and steering compass

The nearest cables to the compasses are as follows:—

A cable carrying Amperes feet from standard compass feet from steering compass.

A cable carrying Amperes feet from standard compass feet from steering compass.

A cable carrying Amperes feet from standard compass feet from steering compass.

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

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

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 "FORT FREDERICA"

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

Certificates. Are certificates of test for motors engaged on essential services and generators forwarded herewith No

General Remarks (State quality of workmanship, whether insulation tests, etc., have been made, opinions as to class, etc.)

THE ELECTRICAL INSTALLATION TO THE STANDARDS OF THE AMERICAN BUREAU OF SHIPPING, HAS BEEN IN OPERATION FOR APPROXIMATELY 4 YEARS. ALTERNATORS AND EXCITERS EXAMINED. MAIN SWITCHBOARD EXAMINED AND ALL MECHANICAL CONNECTORS CHECKED FOR TIGHTNESS. ENGINE ROOM MOTORS EXAMINED. EMERGENCY ALTERNATOR AND SWITCHBOARD CLEANED AND OVERHAULED. THE LIGHTING FITTINGS IN THE 'TWEEN DECK SPACE CENTRE CASTLE HAVE BEEN REPLACED WITH FLAMEPROOF FITTINGS (SWITCHING IN ACCOMMODATION ALLEYWAY). ALL LIGHTING AND POWER CIRCUITS EXAMINED AND MEGGER TESTED ALL FOUND SATISFACTORY. PUMP ROOM CONTROL STATION REPOSITIONED IN CROSS ALLEYWAY MAIN DECK POOP.

NOTE. D. G. REMOVED FROM SHIP.

THE MATERIALS USED AND THE WORKMANSHIP ARE SATISFACTORY

IN MY OPINION, THE ELECTRICAL EQUIPMENT OF THIS SHIP IS IN A SATISFACTORY CONDITION AND ELIGIBLE TO RECEIVE THE SOCIETY'S CLASSIFICATION OF L.M.C. 6.48.

Note SWH
9/8/44

Total Capacity of Generators 875 Kilowatts.

The amount of Fee ... £ : : When applied for,19.....

Travelling Expenses (if any) £ : : When received.19.....

Surveyor to Lloyd's Register of Shipping.

Committee's Minute

FRI. 13 AUG 1948

Assigned

SWH mch 1948



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