

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

20 JAN 1937

Received at London Office

13 JAN 1937

Date of writing Report

When handed in at Local Office

Port of LIVERPOOL

No. in Survey held at BIRKENHEAD
Reg. Book.

Date, First Survey 7/9/36 Last Survey 8/11/37

(Number of Visits... 17)

87479 on the T.S.M.V. BRISBANE STAR

Tons { Gross 11076
Net 6889

Built at BIRKENHEAD By whom built CAMEL LAIRD & CO. Yard No. 1016 When built

Owners THE UNION COAL STORAGE CO (BLUE STAR LINE LTD) Port belonging to LONDON

Electric Light Installation fitted by THE SUNDERLAND FORGE & ENG. CO. LTD Contract No. 1016 When fitted

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double wire

Pressure of supply for Lighting 220 volts, Heating 220 volts, Power 220 volts.

Direct or Alternating Current, Lighting Direct Power Direct

If alternating current system, state frequency of periods per second

Has the Automatic Governor been tested and found efficient when the whole load is suddenly thrown on or off See General Remarks

Generators, do they comply with the requirements regarding temperature rise Yes, are they compound wound Yes, are they over compounded 5 per cent. Yes, if not compound wound state distance between each generator

Where more than one generator is fitted are they arranged to run in parallel Yes, is an adjustable regulating resistance fitted in series with each shunt field Yes, Have certificates of test results for machines under 100 kw. been submitted and approved Yes

Are all terminals accessible, clearly marked, and furnished with sockets Yes, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched Yes, Are the lubricating arrangements of the generators as per Rule Yes

Position of Generators Engine Room, Port + Starboard, is the ventilation in way of the generators satisfactory Yes, are they clear of all inflammable material Yes, if situated near unprotected

woodwork or other combustible material, state distance of same horizontally from or vertically above the generators and, are the generators protected from mechanical injury and damage from water, steam or oil Yes, are their axes of rotation fore and aft Yes

Earthing, are the bedplates and frames of the generating plant efficiently earthed Yes, are the prime movers and their respective generators in metallic contact Yes, Main Switch Boards, where placed Engine Room, aft end athwartship

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard Yes

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam or oil Yes, if situated near unprotected woodwork or other combustible material, state distance of same

horizontally from or vertically above the switchboards and, are they constructed wholly of durable, non-ignitable non-absorbent materials Yes, is all insulation of high dielectric strength and of permanently high insulation resistance Yes

is it of an approved type Yes, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micanite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework Yes, is the non-hygroscopic insulating material of an approved

type Yes, and is the frame effectively earthed Yes, Are the fittings as per Rule regarding: - spacing or shielding of live parts Yes, accessibility of all parts Yes, absence of fuses on back of board Yes, temperature rise of

omnibus bars Yes, individual fuses to voltmeter, pilot or earth lamp Yes, are moving parts of switches alive in the "off" position No, are all screws and nuts securing connections effectively locked Yes, are any fuses fitted on the live side of

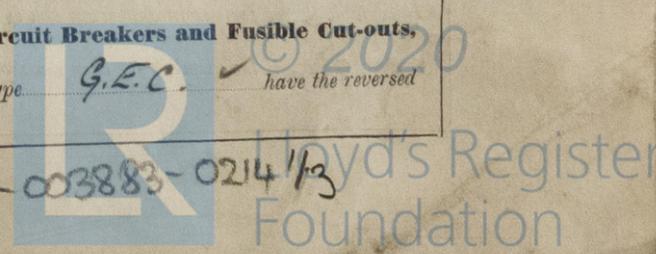
switches No, Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches

FOR GENs: - T.P., O.L. Reverse Current Trip C.B.s. FOR OUTGOING CIRCUITS ABOVE 200 AMPS: - D.P., O.L. Circuit Breakers
FOR CIRCUITS BELOW 200 AMPS: - D.P., O.B. Knife Switches + D.P. Fuses.

Are turbine driven generators fitted with emergency trip switch as per rule Yes, Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Yes, Instruments on main switchboard 1- for each Gen, 1- total load ammeters, 1- Kevic, 10- outgoing, 1- Generator

voltmeters Yes, synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Earth lamps, Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes, are the fusible cutouts of an approved type G.E.C. have the reversed



T.S.M.V. BRISBANE STAR.

DESCRIPTION	No OF MOTORS	CONDUCTORS		COMPOSITION OR STRAND		TOTAL MAX CURRENT AMPS.		APPROX LENGTH LEAD IN RETURN FEET.	INSULATED WITH.	HOW PROTECTED
		No PER POLE	TOTAL AMPS PER POLE SQ INCH	No	DIA.	INCURRENT	RULE			
Servic & Boating M.B. 'B'	1	3	37	.103	346	346	540	V.C.	L.C.S.	
Do Do M.B. 'A'	1	.03	19	.044	57	78	300	Do	Do	
Deck Aux. M.B. 'E'	1	.25	37	.093	275	309	570	Do	Do	
Do 'D'	1	.3	37	.103	330	346	400	Do	Do	
Do 'C'	1	.4	61	.093	408	417	700	Do	Do	
Do 'B'	1	.15	37	.072	220	222	540	Do	Do	
Gyro Compass	1	1007	7	.036	15	25	540	Do	Do	
Refrig M/c M.B. 'F'	2	1.7	127	.093	1321	1466	500	Do	Do	
FAN S.F. Panels 18x19	1	.25	37	.093	291	309	460	Do	Do	
Do 20	1	.2	37	.083	202	246	100	Do	Do	
Do 23	1	.2	37	.083	253	266	450	Do	Do	
Brine Pumps	5	1	.03	.044	68	78	243	Do	Do	
Do	1	1	10045	.029	15	18.2	250	V.I.R.	Do	
Do	1	1	10045	.029	14	18.2	240	Do	Do	
Refrig S.W. Circ Pumps	2	1	.03	.044	68	78	176	V.C.	Do	
Hall mark	2	1	.01	.044	28	31	80	V.I.R.	Do	
Refrig F.W. Pump	1	1	10045	.029	14	18.2	200	Do	Do	
Do	1	1	10225	.064	45	46	215	H.R.	Braidid	
Fans etc	1	1	10145	.052	32.5	37	108	Do	Do	
For 1st	1	1	1007	.036	21	24	125	Do	Do	
No 1 & 2	2	1	10045	.029	16.5	18.2	125	Do	Do	
Holds & Tween Decks	1	1	10045	.029	14	18.2	270	Do	Do	
Do	1	1	1003	.036	7.5	12	50	Do	Do	
Do	1	1	1002	.029	15	7.8	50	Do	Do	
Fans No 2 Tween Decks	6	1	1007	.036	21	24	270	Do	Do	
Do	5	1	1007	.036	21	24	150	Do	Do	
Do	3	1	10045	.029	14	18.2	250	Do	Do	
Fans etc	1	1	1003	.036	11	12	150	Do	Do	
Ship for No 3 Hold	2	1	1003	.036	9	12	250	Do	Do	
Tween Decks & Refrig	1	1	1002	.029	5	7.8	200	Do	Do	
Engine Room	1	1	1002	.029	4	7.8	190	Do	Do	
Do	2	1	1002	.029	2.5	7.8	140	Do	Do	
Do	4	1	1002	.029	2	7.8	150	Do	Do	
Do	1	1	1002	.029	1.5	7.8	120	Do	Do	
Do	1	1	10225	.064	45	46	135	Do	Do	
Fans etc	1	1	10145	.052	32.5	37	135	Do	Do	
For 1st	2	1	1007	.036	23.5	24	150	Do	Do	
No 4-5 & 6	2	1	1007	.036	21	24	160	Do	Do	
Holds & Tween Decks	1	1	10045	.029	14	18.2	130	Do	Do	
Do	1	1	1003	.036	7.5	12	250	Do	Do	

current protection devices been tested under working conditions Yes Joint Boxes, Section and Distribution Boards, is the

construction, protection, insulation, material, and position of these as per rule Yes

Cables: Single, twin, concentric, or multicore Single & Twin are the cables insulated and protected as per Tables IV, V, X or XI of the Rules Yes

If the cables are insulated otherwise than as per Rule, are they of an approved type Yes Fall of Pressure, state maximum between bus bars and

any point of the installation under maximum load Power 11.8 volts lightning 8.6 volts Cable Sockets, are the ends of all cables having a sectional

area of 0.04 square inch and above provided with soldering sockets Yes Paper Insulated and Varnished Cambric Insulated Cables.

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with

insulating compound Yes, or waterproof insulating tape Yes Cable Runs, are the cables fixed as far as possible in accessible positions

not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical

damage Yes Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit Yes

Support and Protection of Cables, state how the cables are supported and protected Machinery Spaces & main Deck: L.C.B cables clipped

to steel trays. Along Deck etc: In trough filled with down temp Comp & on Refrig: - H.R. cables clipped to iron frames

If cables are run in wood casings, are the casings and caps secured by screws Yes, are the cap screws of brass Yes, are the cables run in

separate grooves Yes If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII Yes

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements Yes

Joints in Cables, state if any, and how made, insulated, and protected None made

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands

Yes Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the

holes efficiently bushed Yes state the material of which the bushes are made Lead & Fibre

Earthing Connections, state what earthing connections are fitted and their respective sectional areas Yes

Yes, are their connections made as per Rule Yes

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule Yes Emergency Supply, state

position and method of control of the emergency supply and how the generator is driven Yes

Navigation Lamps, are these separately wired Yes, controlled by separate switch and separate fuses Yes, are the fuses double pole Yes

are the switches and fuses grouped in a position accessible only to the officers on watch Yes

has each navigation lamp an automatic indicator as per Rule Yes Secondary Batteries, are they constructed and fitted as per Rule Yes

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, watertight Yes

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected Yes

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected Yes

Yes, how are the cables led Yes

where are the controlling switches situated Yes

are all fittings suitably ventilated Yes, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials Yes

Heating and Cooking Appliances, are they constructed and fitted as per Rule Yes, are air heaters constructed and fitted as per Rule Yes

Searchlight Lamps, No. of Yes, whether fixed or portable Yes, are their fittings as per Rule Yes

Arc Lamps, other than searchlight lamps, No. of Yes, are their live parts insulated from the frame or case Yes, are their fittings as per Rule Yes

Motors, are their working parts readily accessible Yes, are the coils self-contained and readily removable for replacement Yes

are the brushes, brush holders, terminals and lubricating arrangements as per Rule Yes, are the motors placed in well-ventilated compartments in which

inflammable gases cannot accumulate and clear of all inflammable material Yes, are they protected from mechanical injury and damage from

water, steam or oil Yes are their axes of rotation fore and aft Yes & Vertical, if situated near unprotected woodwork or other combustible

material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type Drip proof for cooler fans

Yes, if not of this type, state distance of the combustible material horizontally or vertically above the motors Yes and Yes

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing Yes Control Gear and Resistances, are the generator

field and motor speed regulators, starters and controllers constructed and fitted as per Rule Yes Lightning Conductors, where lightning conductors

are required, are these fitted as per Rule Yes Ships carrying Oil having a Flash Point less than 150° F. Have the special requirements of

the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and

fittings Yes are all fuses of the filled cartridge type Yes are they of an approved type Yes

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office Yes

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule 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 ...	3	340	220	1540	375	Sulphur Diesel Engines		
AUXILIARY ...								
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
	No. per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
MAIN GENERATOR ...	3	1.8	91	.093	1540	1683	157	V.C.	L.C.B.
EQUALISER CONNECTIONS	2	.8	61	.093	-	834	137	do	do
AUXILIARY GENERATOR ...									
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR...									
ENGINE ROOM... No. 1 ...	1	.0145	7	.052	28	37	200	V.I.R.	L.C.B.
ENGINE ROOM... No. 2 ...	1	.0145	7	.052	28	37	200	do	do
AUXILIARY SWITCHBOARDS									
Trans. Heaters sub 'A'	1	.1	19	.083	152.5	172	540	V.C.	do
do do 'B'	1	.06	19	.064	116	122	460	do	do
ACCOMMODATION									
Lighting sub 'A'	1	.06	19	.064	52.4	122	540	V.C.	L.C.B.
Lighting sub 'B'	1	.0045	7	.029	12	18.2	190	V.I.R.	do
Lighting sub 'B'	1	.04	19	.052	52	94	460	V.C.	do
Low Power sub 'B'	1	.0045	7	.029	6	18.2	160	V.I.R.	do
WIRELESS	1	.01	7	.044	20	31	600	do	do
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	.18	7.8	410	do	do
SIDE LIGHTS	1	.002	3	.029	.18	7.8	180	do	do
COMPASS LIGHTS	1	.002	3	.029	.1	7.8	25	do	do
Deck LIGHTS	1	.002	3	.029	.18	7.8	890	do	do
CARGO LIGHTS	1	.0225	7	.064	20	68	540	V.C.	do
do do	1	.0225	7	.064	20	68	900	do	do
HEATERS									

MOTOR CONDUCTORS.

DESCRIPTION.	No. of Motors.	CONDUCTORS.		COMPOSITION OF STRAND.		TOTAL MAXIMUM CURRENT. AMPERES.		Approximate Length. (Lead and Return.) Feet.	Insulated with	HOW PROTECTED.
		No. Per Pole.	Total Nominal Area per Pole Sq. Ins.	No.	Diameter.	In Circuit.	Rule.			
BALLAST PUMP ...	1	1	.04	19	.052	93	94	145	V.C.	L.C.B.
MAIN BILGE LINE PUMPS	1	1	.0225	7	.064	49	68	270	do	do
GENERAL SERVICE PUMP	1	1	.04	19	.052	93	94	127	do	do
EMERGENCY BILGE PUMP										
SANITARY PUMP	1	1	.04	19	.052	93	94	127	do	do
CIRC. SEA WATER PUMPS	3	1	.1	19	.083	162	172	284	do	do
CIRC. FRESH WATER PUMPS	2	1	.1	19	.083	170	172	284	do	do
AIR COMPRESSOR	2	1	.4	61	.093	395	417	240	do	do
FRESH WATER PUMP Domestic	1	1	.01	7	.044	23.5	38	310	do	do
ENGINE TURNING GEAR...	2	1	.0225	7	.064	58.5	68	300	do	do
Aux. F.W. W. CIRC. PUMP	1	1	.04	19	.052	97	94	180	do	do
ENGINE REVERSING GEAR	1	1	.04	19	.052	97	94	180	do	do
LUBRICATING OIL PUMPS	3	1	.06	19	.064	120	122	57	do	do
OIL FUEL TRANSFER PUMP	2	1	.0225	7	.064	56	68	140	do	do
WINDLASS	1	1	.2	37	.083	200	338	405	do	do
WINCHES, FORWARD	2	1	.1	19	.083	200	203	144	do	do
do do MIDDLE	5	1	.075	19	.072	165	162	211	do	do
WINCHES, AFT	4	1	.075	19	.072	165	162	208	do	do
do do	5	1	.075	19	.072	165	162	111	do	do
WARDING WINCH. STEERING GEAR	1	1	.1	19	.083	200	203	450	do	do
No. 1 (a) MOTOR GENERATOR	1	1	.15	37	.072	270	222	540	do	do
No. 2 (b) MAIN MOTOR	1	1	.15	37	.072	270	222	550	do	do
WORKSHOP MOTORS	3	1	.003	3	.036	12	12	200	V.I.R.	do
VENTILATING FANS	6	1	.0045	7	.029	14	18.2	260	V.I.R.	do
Motor for Pumps Essential	1	1	.0225	7	.064	55	68	350	V.C.	do
do do for Essential	1	1	.04	19	.052	85	94	500	do	do
Oil Pumps	3	1	.003	3	.036	12	12	270	V.I.R.	do
do	1	1	.003	3	.036	8	12	270	do	do
Oil Fuel Blower	2	1	.003	3	.036	10	12	250	do	do
Fuel oil Pump	1	1	.003	3	.036	10	12	100	do	do
Cranes.	2	1	.007	7	.036	20	24	250	do	do

M.B.C.
4
B.
E

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

Williamson
THE SUNDERLAND PIPE & ENGINEERING CO. LTD.

Electrical Engineers.

Date *Dec 31st 1936*

COMPASSES.

Distance between electric generators or motors and standard compass *45 ft. Approx.*

Distance between electric generators or motors and steering compass *37 ft. Approx.*

The nearest cables to the compasses are as follows:—

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

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

A cable carrying *12* Ampères *7* feet from standard compass *5* 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 *1/2 W* degrees on *S.E by E - S by W* course in the case of the standard compass, and *1/2 E* degrees on *NE by N - NE by E* course in the case of the steering compass.

FOR AND ON BEHALF OF
Cammell Laird & Co. Limited.

W. Laird

Builder's Signature.

Date

SECRETARY

Is this installation a duplicate of a previous case *Yes* If so, state name of vessel *T.S.MV. MELBOURNE STAR.*

General Remarks (State quality of workmanship, opinions as to class, &c. *This installation has been fitted on board under Special Survey and in accordance with the approved plans and has been tested under full working conditions. The materials and workmanship have been found to be good and sound.*)

The generator engine governors on testing were found somewhat erratic in their operation and are to have attention on vessel's return to the U.K. when further tests of governing and compounding will be carried out. In the meantime these governors are considered sufficiently satisfactory for the present voyage.

Total Capacity of Generators *1020* Kilowatts.

The amount of Fee ... £ *70 : 10* : *31/12/36*

Travelling Expenses (if any) £ *2 : 19* : *6* *6/1/37*

R.C. Clayton *J. S. Mellon*
Surveyors to Lloyd's Register of Shipping.

FRI 30 APR 1937

WED 4 AUG 1937

TUE 10 AUG 1937

TUE 14 AUG 1937

Committee's Minute *LIVERPOOL 19 JAN 1937*

Assigned *Electric light subject.*

2in 5.34.—Transfer.
The Surveys are requested not to write on or below the space for Committee's Minute



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