

## REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office.....

Date of writing Report... 4-7-47... 1947 When handed in at Local Office... 9-7-47... 1947 Port of... Sunderland.

No. in Survey held at... Sunderland... Date, First Survey... 10-1-47... Last Survey... 27-6-1947  
Reg. Book. M.V. "BRITISH FERN" (Number of Visits... 16)

on the... Tons Gross... 8582 Net... 4919

Built at... Sunderland... By whom built... Sir James Laing &amp; Sons Ltd Yard No. 771 When built... 1947

Owners... The British Tanker Co. Ltd Port belonging to... London.

Electrical Installation fitted by... Sunderland Forge &amp; Engineering Co Ltd Contract No. 771 When fitted... 1947

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  
RADAR yes

Have plans been submitted and approved... yes System of Distribution... two wires insulated Voltage of supply for Lighting... 110

Heating... Power... 110 Direct or 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... 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... 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... Nos 1 &amp; 2 Eugene Lm Forward of Main Engine: No. 3 on raised

Holt &amp; R. St. Andrew 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... on angle framework above Nos 1 &amp; 2 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... three "Sindanyo" 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... a triple-pole (one pole

for equaliser) air-break circuit-breaker fitted with oil time lag &amp; R/V current tripping

device

and for each outgoing circuit... a double-pole quick-break Ruse switch and double-pole fuse.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule... yes Instruments on main switchboard... 3

ammeters... 3 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... E lamps coupled to E through two 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... 157, 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... 35A 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... &gt; C.V., are the ends of all cables having a sectional area of 0.04

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 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 no, 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 in machinery spaces, along deck gangways etc V.C. L.C.A.B. cables protected to the surface by galvanised clips or hardwood cleats. In accommodation L.C. cables clipped to the surface & protected as required by metal or wooden guards.

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 lead, or fibre. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule yes. Emergency Supply, state position 8-120 lights placed in engine & boiler rooms and method of control Battery-fed: Relay operated on failure of ship's supply or E.H. 24 fuses. 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 2 of 80 A.H.

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 High flameproof lighting fittings as approved installed in stokehold and where are the controlling switches fitted in officers quarters, 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 —. 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 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	3	30	110	273	640	Single Cylinder Vertical Steam Engines		
EMERGENCY								
ROTARY TRANSFORMER								

#### 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	30	1	37/083	273	296	50	V.C.	L.C.
" " EQUALISER	2	1	19/083	191	25	25	"	"
" " Equaliser	2	1	37/083	273	296	60	"	"
" " Equaliser	3	1	19/083	191	30	30	"	"
" " Equaliser	3	1	37/083	273	296	74	"	"
" " Equaliser	1	1	19/083	191	36	36	"	"
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

#### 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							
Sectional Board 'A' - Mainship 11y	1	37/072	70	246	516	V.C.	L.C.A.B.
" " 'B' - Pans	1	19/083	64	191	516	"	"
" " 'C' - 4/2 Power	1	19/064	80	135	216	"	"
" " 'D' - Lighting	1	19/044	55	87	158	"	"
" " 'E' - Northship Motors	1	7/064	45	75	216	"	"
" " 'F' - 6/2 Purifiers	1	7/064	52	75	108	"	"
" " Engine Room Lighting	1	7/064	51	75	36	"	"

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

WIRELESS	1	19/064	10	135	654	V.C.	L.C.A.B.
NAVIGATION LIGHTS	1	19/064	15	135	656	"	"
HEATING AND LIGHTING Emergency from SB 'A' through L.O.S. in Wheelhouse.							
Engine Room. D.R. 5 - off SB 'A' Deck.	1	7/036	17	24	46	V.H.	L.C.B.
Grange D.B. D.R. 6	1	7/044	22.6	31	56	"	"
Engine Room. D.R. 4	1	7/036	19.6	24	84	"	"
Officer's Accom. D.R. 3	1	7/044	25	30	90	"	"
Grange " D.R. 2	1	7/036	12	24	104	"	"
Engine Room Lighting - Port D.B.	1	7/036	10	24	120	"	L.C.A.B.
" " Starboard " "	1	7/036	14	24	168	"	"
Engine Compartment	1	7/044	10	46	150	"	L.C.B.
Pump Room 11y - off D.R. 6	1	7/036	2	10	90	"	L.C.A.B.
Off Lighting D.D. 1.	1	7/036	23.4	24	84	"	"
" " 2	1	7/036	17.5	24	102	"	"
" " 3	1	7/036	23.5	24	66	"	"
" " 4	1	7/036	23.5	24	66	"	"
Spot Connection	1	37/083	—	296	180	"	L.C.A.B.
Under	1	19/064	55	135	660	"	"

#### MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Port Winch 1. Port.	1	2	1	7/036	18	24	144	V.I.R. L.C.B.
" 2 Starboard.	1	2	1	7/036	18	24	84	"
" 3 P. aft	1	2	1	7/036	18	24	84	"
" 4 S. "	1	2	1	7/036	18	24	148	"
Incinerator No. 1. Port.	1	3	1	7/044	26	31	90	"
" 2 Starboard.	1	3	1	7/044	26	31	72	"
" 3 P. aft	1	3	1	7/044	26	31	85	"
" 4 S. "	1	3	1	7/044	26	31	146	"
Supply Fan.	1	1.5	1	7/036	16	24	104	"
Exhaust Fan 1. Mainship	1	2	1	3/036	2.5	10	132	"
" 2 Galley	1	2	1	3/036	2.5	10	90	"
" 3 " "	1	2	1	3/036	2.5	10	86	"
" 4 Steering Gear	1	2	1	3/036	2.5	10	86	"
Workshop Motor	1	4	1	7/044	25	31	54	"
Grinder	1	1	1	7/029	10	15	54	"
Crank	1	3	1	7/044	26	31	114	"
Oil Purifier No. 1.	1	3	1	7/044	26	31	42	"
" No. 2.	1	3	1	7/044	26	31	54	"
Feed Pumping Pump	1	1.5	1	7/036	16	24	192	"
Air Conditioning Plant	1	1.5	1	7/036	16	24	54	"



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.

*Sunderland Forge & Eng Co Ltd*  
*J. S. Gurney*

Electrical Engineers.

Date *4-4-1947*

#### COMPASSES.

Minimum distance between electric generators or motors and standard compass *14'*

Minimum distance between electric generators or motors and steering compass *16'*

The nearest cables to the compasses are as follows:—

A cable carrying *.15* Ampères *10* feet from standard compass *on the* feet from steering compass.

A cable carrying *.15* Ampères *on the* feet from standard compass *10* 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 *Way* course in the case of the standard compass, and *Nil* degrees on *Way* course in the case of the steering compass.

*SIR JAMES LAING & SONS LIMITED.*

Builder's Signature.

Date *8-7-47*

Is this installation a duplicate of a previous case *yes* If so, state name of vessel *M.V. British Princess*

Plans. Are approved plans forwarded herewith *No.* If not, state date of approval *D. 18.9.46 (Revised) 5.8.5.46*

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 installation of the above vessel has been installed under special survey in accordance with the approved plans and the "Rules for Electrical Equipment": The materials used are of good quality and design and the workmanship is good. On completion the equipment was operated on load with satisfactory results and the insulation resistance of each circuit was measured and found good. This equipment is in my opinion suitable for a classed vessel.*

*Noted*

*Rev 23.7.47*

Total Capacity of Generators *(3x30) 90* Kilowatts.

The amount of Fee ... *£31. 10. 0.*

When applied for, *JUL 9 1947*

Travelling Expenses (if any) £ :

When received, .....

*S. J. Gurney*  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

*FRI 25 JUL 1947*

Assigned

*See F.E. mch. rpt.*