

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

22 DEC 1953

Received at London Office

Date of writing Report 19.11.53 When handed in at Local Office NOV 26 1953 Port of Sunderland

Survey held at Sunderland Date, First Survey 13.8.53 Last Survey 18/11/53  
(No. of Visits SEVENTEEN)

on the m.v. "SHEAF ROYAL" Tons { Gross 12005  
Net 4048

built at Sunderland By whom built J.L.Thompson & Sons Ltd. Yard No. 677 When built 1953

Owners Sheaf Steam Shipping Co.Ltd Port belonging to Newcastle-on-Tyne

Installation fitted by Sunderland Forge & Engineering Co.Ltd When fitted 1953

Is vessel equipped 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

Plans, have they been submitted and approved yes System of Distribution 2-wire insd. Voltage of Lighting 110

Heating 110 Power 110 D.C. or A.C., Lighting D.C. Power D.C. If A.C. state frequency -

Prime Movers, has the governing been found as per Rule when full load is thrown on and off yes Are turbine emergency governors fitted with a trip switch - Generators, are they compound wound yes, and level compounded under working conditions yes

Are the generators arranged to run in parallel yes Is the compound winding connected to the negative or positive pole negative

Have machines 100 kw. and over been inspected by the Surveyors during manufacture and testing yes Have certificates of test for machines under 100 kw. been supplied and the results found as per Rule yes Position of Generators on raised deck on c/l aft of main engine.

Is the ventilation in way of generators satisfactory yes are they clear of inflammable material and protected from mechanical injury and damage from water, steam and oil yes Switchboards, where are main switchboards placed adjacent to generators

Are they in accessible positions, free from inflammable gases and acid fumes and protected from mechanical injury and damage from water, steam and oil yes, what insulation is used for the panels Polished "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 construction as per Rule, including locking of screws and nuts 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 O/L & R/V current tripping devices.

and the switch and fuse gear (or circuit breakers) for each outgoing circuit for large Ltg & power: a D.P. air-break circuit-breaker fitted with O/L trips on each pole. other circuits: a D.P. knife switch and D.P. cartridge type fuses.

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 are the ammeters and reverse current protection devices connected on the pole opposite to the equaliser connection yes Earth Testing, state means provided E lamps

Preference Tripping, state if provided no, and tested -

Switches, Circuit Breakers and Fuses, are they as per Rule yes, are the fuses an Approved Type yes

make of fuses "ZED", are all fuses labelled yes If circuit breakers are provided for the generators, at what overload do they operate 10%, and at what current do the reverse current protective devices operate within 15% Cables, are they insulated and protected as per Rule yes

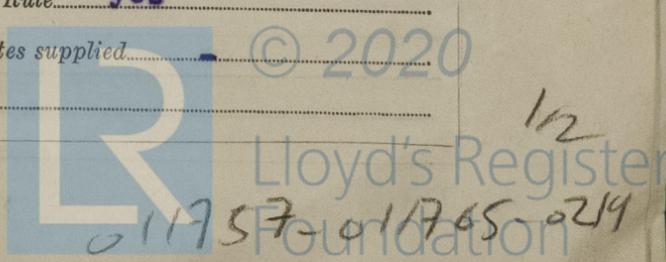
if otherwise than as per Rule are they of an Approved Type -, state maximum fall of pressure between bus bars and any point under maximum load within 6 volts. Are all paper insulated and varnished cambric insulated cables sealed at the ends yes

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 any cables laid under machines or floorplates no, if so, are they adequately protected - State type of cables (if in conduit this should also be stated) in machinery spaces L.C.A.B., galleys L.C.A.B. and laundries - State how the cables are supported or protected main and sub-main feeders along fore and aft gangways V.C.L.C.A.B. cables in hardwood cleats supported by metal strongbacks, fastened to gangway railings, as approved on the plans. Accommodation, L.C. cables on the surface of wooden grounds and protected where necessary by wood or metal guards

Are all lead sheaths, armouring and conduits effectually bonded and earthed yes Are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands yes, where unarmoured cable pass through beams, etc., are the holes effectively bushed yes Refrigerated chambers, are the cables and fittings as per Rule yes

Have refrigeration fan motors been constructed under survey - and test certificates supplied -

Are the motors accessible for maintenance at all times -



Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule... **yes**... Emergency Supply, state position

Navigation Lamps, are they separately wired... **yes**... controlled by separate double pole switches 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**... Is an alternative supply provided... **yes**

Secondary Batteries, are they constructed, fitted and adequately ventilated as per Rule... state battery capacity in ampere hours... Where required to do so does it comply with 1948 International Convention...

Lighting, is fluorescent lighting fitted... **no**... If so, state nominal lamp voltage... and compartments where lamps are fitted...

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof... **yes**

Searchlights, No. of... whether fixed or portable... are they of the carbon arc or of the filament type...

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... **all as per rule**... Motors, are all motors constructed and installed as per Rule and placed in well-ventilated compartments in which inflammable gases cannot accumulate and protected from damage from water, steam and oil... **yes**

Are motors coupled to oil fuel transfer and 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 sea services been supplied and the results found as per Rule... **yes**

Lightning Conductors, where required are they fitted as per Rule...

Ships carrying Oil having a Flash Point of less than 150° F. Have all the special requirements of the Rules for such ships been complied with... **yes**... are all fuses of an Approved Cartridge Type... **yes**... make of fuse... "ZBD" Are the fittings for pump rooms, tween deck spaces, etc., in accordance with the special requirements for such ships... **yes**... Are all cables lead covered as per Rule... **yes**

E.S.D., if fitted state maker... **Marconi**... location of transmitter and receiver... **fr. 48/49 P.&S.**

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and 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	MAKER.	RATED AT				PRIME MOVER.	
			Kw. per Generator.	Volts.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN	2	S.F.& Eng. Co. Ltd Nos. 45236/7	150	110	1364	600	Diesel	W.H. Allen & Sons Ltd. Nos. K2/95497/A/B.
aux.	1	S.F.& Eng. Co. Ltd No. 45238	75	110	682	500	Steam	Bellis & Morcom Ltd. No. 10883.
EMERGENCY ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	No. of	Kw.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
			No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	No. 1.	I 150	4	37/.093	1362	1452	66	V.C.	L.C.
" " EQUALISER	No. 2.	I 150	2	"	726	726	33	"	"
" " eq.	No. 3.	I 75	2	"	726	726	39	"	"
" " eq.			1	"	363	363	75	"	"
EMERGENCY GENERATOR									
ROTARY TRANSFORMER: MOTOR									
" " GENERATOR									

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.).

DESCRIPTION.	No. of	Kw.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
			No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	
Midship Ltg. & Power Panel	2		37/.072	220	520	750	V.C. L.C.A.B.
Aft Lighting Section Panel	I		19/.064	136	143	204	" "
Aft Power ditto	I		19/.064	131	143	204	" "
Saloon Pantry Section Panel	I		19/.064	54	143	20	" L.C.
Priming Pump Section Panel	I		7/.064	52	80	124	" L.C.A.B.
Purifier Section Panel	I		19/.064	100	143	272	" "
Workshop Section Panel	I		7/.064	71	80	132	" "
Pressure Pump Section	I		7/.064	39	80	122	" "
Frig. Machinery Section Panel	I		7/.064	50	80	280	" "
Shore Connection	I		37/.083	300	314	220	" "
de Gaussing Supply	I		19/.052	80	110	80	" "

DISTRIBUTION CABLES (to Section-Boards and Distribution-Fuse-Boards, etc.).

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
W/T. Supply	I	19/.083	18	202	750	V.C.	L.E.A.B.
Navigation - main supply	I	19/.064	29	143	750	"	"
" - alt supply	I	3/.036	1.8	10	112	V.I.R.	L.C.
Radar Supply	I	7/.064	24	80	112	V.C.	"
Gyro Compass Supply	I	7/.044	10	31	80	V.I.R.	"
R.S.D. Supply	I	3/.036	5	10	132	"	"
Battery Charging Panel	I	7/.036	5	24	114	"	"
Suez Canal Projector	I	19/.064	27	143	1500	V.C.	L.C.A.B.
Midship Calorifiers	I	19/.083	91	202	250	"	"
Upper Bridge Ltg. DB, 2.	I	7/.044	21	31	88	V.I.R.	L.C.
Bridge Deck Ltg. DB, 3.	I	7/.064	33	80	14	V.C.	"
Pump Room Ltg. DB, 4.	I	7/.029	13	15	14	V.I.R.	"
Gangway Connections DB, 5.	I	7/.064	60	80	14	V.C.	"
Cargo Ltg. DB, 6.	I	7/.064	20	80	14	"	"
Forecastle Ltg. DB, 7.	I	7/.029	1.8	15	474	V.I.R.	L.C.A.B.
Poop Deck Port Fwd Ltg. DB, 8	I	7/.036	23	24	220	"	L.C.
" " Star " " DB, 9.	I	7/.036	19	24	80	"	"
" " Port Aft " " DB, 10	I	7/.036	10	24	360	"	"
" " Star " " DB, 11.	I	7/.036	9	24	160	"	"
Galley Power DB, 12	I	7/.044	11.7	31	240	"	"
Upper Deck Port Fwd. Ltg. DB, 13	I	7/.044	20	31	360	"	"
" " Star " " DB, 14	I	7/.044	20	31	200	"	"
" " Port Aft " " DB, 15	I	7/.036	13	24	300	"	"
" " Star " " DB, 16	I	7/.036	13	24	132	"	"
Engine Room Ltg. Port DB, 17	I	7/.044	28	31	220	"	L.C.A.B.
" " Star DB, 18	I	7/.044	28	31	80	"	"
Accomm. Heaters-88 Kw (2)	I	7/.036	8	24	140.92	"	L.C.

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
			No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.			
Steering Motors	I	20	I	19/.083	163	202	264	V.C.	L.C.A.B.
Jacket Water Pump	I	64	I	61/.093	495	492	136	"	L.C.B.
S.W. Cooling Pump	I	54	I	61/.093	422	492	178	"	L.C.B.
Turning Gear	I	25	I	19/.083	190	202	90	"	L.C.A.B.
Forced Lub Oil Pump	I	26	I	19/.083	195	202	44	"	"
Forced Draught Fan	I	12	I	19/.052	95	110	200	"	"
Priming Pump	I	2	I	7/.036	17.7	24	50	V.I.R.	"
Fuel Valve Cooling Pumps	2	2	I	7/.036	16.8	24	2/100	"	"
Oil Purifiers	5	3.5	I	7/.064	33.3	80	av. 60	V.C.	"
Crane Motor	I	3	I	7/.064	28.5	80	180	"	"
Lathe Motor	I	3	I	7/.064	24.5	80	50	"	"
Pressure Pumps	4	1.5	I	7/.036	13	24	av. 60	V.I.R.	"
Fridge Compressors	2	5	I	7/.064	40	80	50	V.C.	"
" Circ. Pump	I	1	I	7/.029	10	15	260	V.I.R.	"
Midship Vent Fan	I	3.6	I	7/.044	29	31	114	"	L.C.
Aft ditto	2	3.6	I	7/.064	29	30	2/72	V.C.	"
Engine Rm Vent Fans	2	.75	I	7/.044	7.6	31	200.210	V.I.R.	"
Boiler Rm " "	I	.75	I	7/.044	7.6	31	192	"	"
Grinder Motor	I	2	I	7/.064	18	80	30	V.C.	"
Galley Blowers	2	.125	I	3/.029	2.2	5	2/20	V.I.R.	"

NOTE.—Use Rpt. 13 Continuation Sheet if the above space is insufficient.

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.

PRO THE **BERKSHIRE & ENGINEERING CO., LTD.**

Electrical Contractors.

Date 23/11/53

**COMPASSES.**

Have the compasses been adjusted under working conditions yes

**JOSEPH L. THOMPSON & SONS, LIMITED**

Builder's Signature.

Date 25-11-53

Have the foregoing descriptions and schedules been verified and found correct yes

Is this installation a duplicate of a previous case no If so, state name of vessel -

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

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith yes

General Remarks. (State quality of workmanship and materials, opinions as to class, etc.) The main cables to the 75 Kw. auxillary generator will be seen to differ from those shown on the approved plans. Since the approval of plans, the generators have been re-sited in new positions, and the auxillary generator cables have therefore been modified to suit the new arrangement. The results in the load-sharing tests on board were found satisfactory.

The electrical equipment of this vessel has been installed under special survey in accordance with the Electrical Rules, with special reference to the requirements of Section 15 thereof, and, with the above qualification, the arrangements in general principle accord with those shown on the approved plans: an 'as fitted' diagram of the circuits is sent with this report. The materials and workmanship are good. On completion, satisfactory trials of the equipment were witnessed and the insulation resistance of all circuits was measured and found good. This equipment is in my opinion suitable for a vessel to be classed with this Society for "Carrying Petroleum In Bulk".

( 2 x 150, 1 x 75 )  
Total Capacity of Generators 375 ✓ Kilowatts.

The amount of Fee ... £ 98. 5. 0 ; When applied for, DEC - 1 1953

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

B. W. Hammett  
Surveyor to Lloyd's Register of Shipping.

Committee's Minute

TUESDAY 29 DEC 1953

Assigned See Rep. 46.