

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

20 JUL 1949

Date of writing Report 11.7.1949 When handed in at Local Office 19 Port of Sunderland

No. in Survey held at Sunderland Date, First Survey 18.2.49 Last Survey 7.7.49 19

Reg. Book. (No. of Visits 14)

on the M.V. "BJORN STANGE" Tons { Gross 10099 Net 5895

Built at Sunderland By whom built Sir James Harney & Sons Ltd Yard No. 782 When built 1949

Owners Skis: A/S. Amstien (Lief Trogt & Co) Port belonging to G.S.O.

Installation fitted by Sunderland Forge & Engineering Co. Ltd. When fitted 1949

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. - Radar Yes

Plans, have they been submitted and approved. Yes System of Distribution 2-Wire Ins. Voltage of Lighting 110

Heating - 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

if not compound wound state distance between generators. - and from switchboard. - Are the generators 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

Position of Generators engine room on raised deck Starboard

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. dry "Sindano" 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 5/2 R/V. Neutral tripping devices

and the switch and fuse gear (or circuit breakers) for each outgoing circuit. a double pole knife switch & double pole fuse.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule. Yes Instruments on main switchboard. 4

ammeters. 4 voltmeters. - synchronising devices. For compound machines in parallel are the ammeters and reversed current protection devices connected on the pole opposite to the equaliser connection. Yes

Earth Testing, state means provided. E lamps

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. 5%

and at what current do the reversed current protective devices operate. 40 A

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule. Yes

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. 76 V, are the ends of all cables having a sectional area of 0.01 square inch and above provided with soldering sockets. Yes

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. -

Are cables in machinery spaces, galleys, laundries, etc., lead covered. Yes or run in conduit. -

or of the "HR" type. State how the cables are supported or protected. Main fuses L.C.B. (V.C. insulated)

clipped to heavy steel strip with cover plate along fore and aft gangway.

In accommodation L.C. cables on the surface and protected as required 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 cables pass through beams, etc., are the holes effectively bushed. Yes

Refrigerated chambers, are the cables and fittings as per Rule. Yes

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Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule 446 Emergency Supply, state position

Navigation Lamps, are they separately wired 446 controlled by separate double pole switches and fuses 446 Are the switches and fuses in a position accessible only to the officers on watch 446, is an automatic indicator fitted 446 Is an alternative supply provided 446

Secondary Batteries, are they constructed and fitted as per Rule 446, are they adequately ventilated 446 state battery capacity in ampere hours 446

Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof 446 Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present 446

if so, how are they protected Mignol flameproof lighting fittings as approved installed in combustible and where are the controlling switches fitted in officers' quarters Are all fittings suitably ventilated 446

Searchlight Lamps, 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 —, are the frames effectually earthed —, are heaters in the accommodation of the convection type — 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 446

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 — 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 446

Control Gear and Resistances, are they constructed and fitted as per Rule 446 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 446, are all fuses of an Approved Cartridge Type 446, make of fuse "ZED" Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships 446 Are the cables lead covered as per Rule —

E.S.D., if fitted state maker Hughes location of transmitter End of Port C. Deck and receiver End of Star C. Deck

Spare Gear, if the vessel is for open sea service have spares been provided as per Rule and suitably stored in dry situations 446

Insulation Tests, has the insulation resistance of all circuits and apparatus been tested and found satisfactory 446

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	MAKER.	RATED AT				PRIME MOVER.	
			Kilowatts per Generator.	Volts.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN	3	Sunderland Forge.	35	110	318	640	Steam	Sunderland Forge.
	1	do.	35	110	318	1000	Diesel	Russell-Murray.
EMERGENCY ROTARY TRANSFORMER								

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	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. 35	2	19/0.83	318	382	54	V.C.	L.C.A.B.
" " EQUALISER	No. 2. 35	1	"	191	27	"	"	"
" " " " " "	No. 3. 35	2	"	318	382	68	"	"
" " " " " "	" " " " " "	1	"	191	34	"	"	"
" " " " " "	" " " " " "	2	"	318	382	85	"	"
" " " " " "	" " " " " "	1	"	191	42	"	"	"
EMERGENCY GENERATOR	No. 4. 35	3	"	318	573	100	"	"
ROTARY TRANSFORMER MOTOR	" " " " " "	2	"	"	382	50	"	"
" " " " " "	" " " " " "							

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

DESCRIPTION.	No. in Parallel per Pole.	Sectional Area or No. and Dia. of Strands. Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
Sub-midshipboard - Midship Panel.	2	37/0.72	318	592	580	V.C.	L.C.A.B.
Left Section Panel - 3.5 Fans.	1	19/0.83	110	191	148	"	"
" " " " " "	1	19/0.83	110	191	132	"	"
" " " " " "	1	19/0.44	75	87	214	"	"
Galley Pantry Section P. P.S. 4.	1	19/0.64	110	135	200	"	"
Laundry Section Panel 5.5	1	19/0.64	110	135	100	"	"
Engine Room Section P. 5.6	1	7/0.64	39	75	36	"	"
" " " " " "	1	7/0.64	42	75	120	"	"

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

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.			
Prop Lighting D.B. 5 Port.	1	7/0.64	17.6	46	66	V.I.R.	L.C.
" " " " " "	1	7/0.64	18	46	80	"	"
" " " " " "	1	7/0.64	15	46	32	"	"
Upper Deck Lighting D.B. 9. Star	1	7/0.64	16	46	15	"	"
" " " " " "	1	7/0.64	21	46	105	"	"
Engine Rm. " D.B. 10	1	7/0.44	16	31	36	"	"
" " " " " "	1	7/0.44	16	31	132	"	"
Bridge Hg. + Lav. D.B. 1.	1	7/0.36	20	24	80	"	"
Upper Bridge Hg. D.B. 2.	1	7/0.44	15	31	64	"	"
Pantry D.B. 3.	1	7/0.64	58	75	55	V.C.	"
Bridge Deck Hg. D.B. 4	1	7/0.44	27	31	25	V.I.R.	"
Large Hg. D.B.	1	7/0.64	17.4	46	26	"	"
Navigation Alternative from D.1.	1	1/0.64	5	5	26	"	"
" Supply from midshipboard.	1	1/0.64	-	5	70	"	"
Wg. Supply	1	7/0.64	10	75	330	V.C.	"
Radar Supply	1	7/0.64	40	75	76	"	"
Radio Bonding Supply	1	1/0.64	5	5	80	V.I.R.	"
4440 Supply	1	7/0.29	10	15	28	"	"
Keely Canal Prop. (Wiring only)	1	37/0.72	-	246	740	V.C.	"

ALL IMPORTANT MOTORS TO BE ENUMERATED.

DESCRIPTION.	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.			
Engine Room Vent Fans.	4	2	1	7/0.36	18	24	160 A. E. 100	V.I.R.	L.C.A.B.
Prop Deck Thermobanks	2	4.5	1	7/0.64	38	75	2/130	V.C.	"
Galley Exhaust Fan.	1	0.25	1	3/0.29	3	10	40	V.I.R.	"
Turning Gear Motor	1	10	1	19/0.44	80	87	168	V.C.	"
Printing Pump Motor	1	1.5	1	7/0.36	15	24	100	V.I.R.	"
Grain Motor	1	3	1	7/0.64	26	46	94	"	"
Workshop Motor	1	2	1	7/0.36	18	24	136	"	"
Oil Purifiers	3	3	1	7/0.64	26	46	52	"	"
A.W. + E.W. Pump Motors	3	5	1	7/0.36	15	24	30	"	"
Refrigerating Motor	1	5	1	7/0.64	42	75	28	V.C.	"
Midship Thermobank	1	4.25	1	7/0.64	38.6	75	104	"	"

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.

H. Sunderland Forge & Eng Co Ltd. Electrical Contractors. Date *12-4-1949*
V. S. Lacey

COMPASSES.

Have the compasses been adjusted under working conditions... *Yes*

For and on behalf of
SIR JAMES LAING & SONS-LIMITED

Builder's Signature. Date *14th July 1949*

[Signature]
Director

Have the foregoing descriptions and schedules been verified and found correct... *Yes*

Is this installation a duplicate of a previous case... *Yes* If so, state name of vessel... *"Hoght Kald"*

Plans. Are approved plans forwarded herewith... *No* If not, state date of approval... *5.4.3.49; D. 4.4.49.*

Certificates. Are certificates of test for motors engaged on essential sea 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 and the "Rules for Electrical Equipment". The materials and workmanship are good. Upon completion, satisfactory trials of the generators were witnessed and the insulation resistance of all circuits was found good. This equipment is in my opinion suitable for a classed vessel.

Noted sent 8/8/49

Total Capacity of Generators... *(4 x 35) 140* Kilowatts.

The amount of Fee ... *£ 61. 0. 0.* When applied for, *JUL 18 1949*
When received,
Travelling Expenses (if any) £ : : 19

B. D. Mann
Surveyor to Lloyd's Register of Shipping.

Committee's Minute... *FRI. 12 AUG 1949*

Assigned... *Sue F.E. Melby opt.*

2m. 9. 46. - Transfer. (MADE AND PRINTED IN ENGLAND.)
(The Surveyors are requested not to write on or below the space for Committee's Minute.)



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