

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

25 JUN 54

Date of writing Report 19... When handed in at Local Office 19... Port of Copenhagen
 No. in Survey held at Copenhagen Date, First Survey 23/1/54 Last Survey 20th May 1954
 Reg. Book. M/V "INGER SKOU" (No. of Visits 10)
 ✓ on the M/V "INGER SKOU" Tons { Gross 4430
 Net 2478
 Built at Copenhagen By whom built A. Burmeister & Wain Yard No. 715 When built 1954
 Owners Ove Skou Port belonging to Copenhagen
 Installation fitted by A. Burmeister & Wain When fitted 1954
 Is vessel equipped for carrying Petroleum in bulk No 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 insulated Voltage of Lighting 220
 Heating 220 Power 220 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 Yes Have certificates of test for machines under 100 kw. been supplied Yes and the results found as per Rule Yes
 Position of Generators Motor room, port side, at floor level
 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 Motor room, forward, port side, at floor level
 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 Dead front type; Sindams panels at rear 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 three pole overload and reverse current circuit breaker with time limit

and the switch and fuse gear (or circuit breakers) for each outgoing circuit Winches aft; forward 2 winches and windlass; winches for hatch No 2 & 3; each main air compressor; each lub. oil pump; - each with a 2 pole overload circuit breaker; Remainder of circuits fitted with double pole linked switches with a fuse in each pole.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 6
 ammeters 3 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 Voltmeter with an ohm scale and selector switch, and earth lamps.

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes, make of fuses Danish "LK" type, are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 25%, and at what current do the reversed current protective devices operate 15%

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 ✓, 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 ✓ 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 On steel trays and protected with steel covering plates as required.

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 (Domestic ref.)

Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule Yes. Emergency Supply, state position Motor room port side in a compartment at the 'tween deck level.

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 and fitted as per Rule ✓, are they adequately ventilated ✓.

state battery capacity in ampere hours ✓.

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

Are any fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present No.

if so, how are they protected ✓.

and where are the controlling switches fitted ✓. Are all fittings suitably ventilated Yes.

Searchlight Lamps, No. of 1, whether fixed or portable Portable, are they of the carbon arc or of the filament type Filament.

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 Heaters. 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 Under 100 H.P..

Have certificates of test for motors under 100 BHP intended for essential sea 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 ✓, are all fuses of an Approved Cartridge Type ✓, make of fuse ✓. Are the fittings for pump rooms, 'tween deck spaces, etc., in accordance with the special requirements for such ships ✓.

E.S.D., if fitted state maker Helvin-Hughes location of transmitter Between frs. 133-134 and receiver Chartroom.

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.	
			Kilowatts per Generator.	Volts.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN	3	T.B. Thirige	200	220	910	500	Heavy oil	A's Buromister & Wain.
EMERGENCY ROTARY TRANSFORMER	1	A/S Titan	12	220	55	750	"	"

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return) in feet.	INSULATION.	PROTECTIVE COVERING.
		No. in Parallel per Pole.	Sectional Area sq. mm.	In the Circuit.	Rule.			
MAIN GENERATOR	200	3	310	910	945	Short	V.R.	Lead covered, wire armoured.
" " EQUALISER	-	2	240	-	550	"	"	"
EMERGENCY GENERATOR	12	1	25	55	63	"	"	"
ROTARY TRANSFORMER: MOTOR								
" " GENERATOR								

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

DESCRIPTION.								
Main switchboard to	1	240	250	275	136	V.R.	Lead covered, wire armoured	
Aft winches and capstan	1	150	196	205	168	"	"	"
Two forward winches and windlass	1	185	200	235	85	"	"	"
Four winches for hatches Nos 2 & 3.	1	120	175	175	50	"	"	"
Main light board	1	35	69	78	60	"	"	"
Galley	1	70	84	125	40	"	"	"
Steering gear automatic panel	1	16	48.6	49	50	"	"	"
Ventilation	1	120	175	175	40	"	"	"
Engine room and hold ventilation	1	95	117	150	60	"	"	"
Bilge & sanitary pump & ball pump	1	35	68	78	44	"	"	"
S.W. & F.W. cooling pumps for aux. generator	1	95	111	150	60	"	"	"
Workshop	1	240	245	275	16	"	"	"
Fuel & lubricating oil heaters	1	95	140	150	40	"	"	"
Fuel oil pumps and circ. pumps	1	25	56	63	154	"	"	"
Aft water heaters	1	120	171.6	175	35	"	"	"
S.W. & F.W. heaters								

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

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead plus return) in feet.	INSULATION.	PROTECTIVE COVERING.
	No. in Parallel per Pole.	Sectional Area sq. mm.	In the Circuit.	Rule.			
Main light switchboard to lighting aft deckhouses	1	6	26.4	29	120	V.R.	Lead covered, wire armoured.
Aft deck lights	1	6	14	29	120	"	"
Port " "	1	4	15	22.5	60	"	"
Bridge lights	1	2.5	6.5	15.5	36	"	"
Officers accommodation lighting	1	16	40.1	49	30	"	"
Passenger " "	1	16	41	49	20	"	"
Gyro and radar	1	10	34	38	18	"	"
Engine room lighting	1	10	31.1	38	40	"	"
Wireless	1	10	4.5	38	32	"	"
Navigation lights	1	2.5	1	15.5	36	"	"
Hydro for pumps	1	25	51	63	12	"	"
Domestic Refrigerator	1	4	11	22.5	36	"	"
Boiler Blower	1	1.5	3	9.5	40	"	"

All sub-circuits wired according to the rules

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.						
Air compressors	2	90	2	120	333	350	64	V.R. Lead covered, wire armoured.
Lubricating oil pumps	2	40	1	240	260	275	72-74	"
S.W. & F.W. boiling pumps	3	35	1	95	132	150	68-90	"
Pure pump	1	8.5	1	10	34	38	36	"
Bilge & sanitary pump	1	15	1	25	59	63	5	"
Ballast pump	1	23	1	50	88	99	5	"
S.W. & F.W. boiling pumps for aux. engs	2	8.5	1	10	34	38	12-55	"
Turning motor	1	18	1	35	70	125	50	"
Oil bilge pump	1	20	1	50	80	99	34	"
Engine room blowers	2	8	1	10	32	38	20	"
Fuel oil heater	1	36kw	3	25	55	63	40	"
Lub. oil heater	1	18kw	4	6	21	29	63	"
Purifier Pumps	2	1.1	1	1.5	5	9.5	8-10	"
Lub. oil & fuel oil purifiers	2	3.2	1	2.5	14	15.5	16-50	"
Fuel oil purifiers	2	3.7	1	4	16	22.5	10-14	"
Fuel oil circulating pumps	4	1.8	1	1.5	8	9.5	10-40	"
Fuel oil transfer pump	1	15	1	25	59	63	50	"
F.W. heater	1	21.6kw	1	50	98	99	6	"
S.W. heater	1	16.2kw	1	35	73.6	78	6	"
Windlass	1	52	1	150	196	205	12	"
Winches	12	33	1	70	125	125	10-56	"
Capstans	2	12	1	25	48	63	50-66	"
Steering gear	1	22	1	50	84	99	360	"
Forward hold ventilators	6	3.5	1	50	90	99	86	"
Aft hold ventilators	6	3.5	1	50	90	99	88	"
Plug connection for welding converter	3	4.5	1	16	30	49	5	"

All non-essential motors wired according to the Rules.

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.

COPENHAGEN
REFSHALEDEN

14 JUN 1954

for **AKTIESELSKABET
BURMEISTER & WAINSKIN- og SKIBSBYGGERI**

Electrical Contractors.

Date

M. Maunhoff

CVG.

COMPASSES.

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

Builder's Signature.

Date

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, whether insulation tests, etc., have been made, opinions as to class, etc.)

The electrical installation has been constructed under Special Survey in accordance with the Rules, the approved plans and the Secretary's letters.

The material used is in accordance with the Rules and the workmanship is good.

On completion the whole installation was megger tested and examined under working conditions and found in efficient condition.

Total Capacity of Generators..... *612* ✓ Kilowatts.

The amount of Fee ... *Kr. 2652⁰⁰* When applied for, *24.6 19 54*

Travelling Expenses (if any) *Kr. 30⁰⁰* When received, *19*

Committee's Minute..... *FRIDAY 30 JUL 1954*

Assigned..... *See Rpt. 46.*

R. Bolton
Surveyor to Lloyd's Register of Shipping.