

REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

Date of writing Report 10.12.1960 When handed in at Local Office 12.12.1960 Port of Rijeka

No. in Survey held at Rijeka Date, First Survey 21.7.60 Last Survey 19.11.1960
Reg. Book (No. of Visits 12)

90404 on the "TRUD" Tons Gross 17.597 Net 10.445

Built at Rijeka By whom built Shipyard "3 Maj" Yard No. 460 When built 1960

Owners Black Sea State Steamship Co. Port belonging to Odessa

Installation fitted by Brodogradiliste "3 Maj" When fitted 1960

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 Three phase A.C. Voltage of Lighting 110

Heating 110/44 Power 440 D.C. or A.C. Lighting AC Power AC If A.C. state frequency 60 c/s

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 Yes Generators, are they compound wound Yes, and level compounded under working conditions Yes

Are the generators arranged to run in parallel Turbo- Gens. Yes. Is the compound winding connected to the negative or positive pole -

Have machines 90 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 Engine Room

Turbogenerators first platform port side Diesel generator upper platform port side

is the ventilator 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 Engine Room

first platform starboard side

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 panel, if of synthetic insulating

material of an Approved Type - 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 generator equipped with three-pole circuit

breakers and no-volt, short circuit, delayed overload and reverse power relays

and the switch and fuse gear (or circuit breakers) for each outgoing circuit are fitted with relays protected

circuit breakers backed up with fuses if necessary. Non-essential consumers are

connected to the preference tripping system.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 18

ammeters 3 voltmeters 2 synchronising devices. For compound machines in parallel are the ammeters and reverse current

protection devices connected on the pole opposite to the equaliser connection - Earth Testing, state means provided resistance

meter & earth lamps Preference Tripping, state if provided Yes, and tested Yes

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

make of fuses Siemens Schuckert, are all fuses labelled Yes If circuit breakers are provided for the generators, at what

overload do they operate Main 935 A Harbour 221 A, and at what current do the reverse current protective

devices operate 70 KW 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 volts. 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 Yes, if so, are they adequately protected Yes State

type of cables (if in conduit this should also be stated) in machinery spaces lead covered & arm., galleys lead covered & arm.

and laundries lead covered & arm. State how the cables are supported or protected cables supported on perforated

cable profiles and in holds protected in enclosed steel cable trays

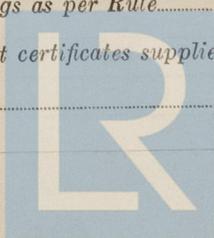
Are all lead sheaths, armouring and conduits effectually bonded and earthed Yes Are all cables passing through decks and watertight

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 -

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 Yes Where required to do so does it comply with 1948 International Convention Yes, state battery capacity in ampere hours 240 Ah 48 h

Lighting, is fluorescent lighting fitted Yes If so, state nominal lamp voltage 110 and compartments where lamps are fitted Engine Room, Boiler Room, Gangways, Mess Room, Saloons

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

Searchlights, No. of 2, whether fixed or portable fixed, 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 - 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 compartment Yes Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing Yes 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 Yes 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 Siemens Schuckert 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 Kelvin Hughes location of transmitter and receiver cofferdam forecastle

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 | KVA | RATED AT | | | TYPE | PRIME MOVER |
|--------------------------|--------|-------------------|-----|----------|---------|----------------|--------|-----------------|
| | | | | Volts | Ampères | Revs. per Min. | | |
| MAIN ... | 2 | Siemens Schuckert | 560 | 450 | 720 | 1200 | turbo | De Laval Sweden |
| Harbour | 1 | " | 148 | 450 | 192 | 1200 | diesel | M.W.H. Germany |
| 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 exciting... | 2 | 560 | 5 | 150 | 700 | 710 | 80 | Rubber | Lead & arm. |
| " " EQUALIZER | 1 | | 1 | 16 | 30 | 33 | 80 | " | " |
| Harbour Generator | 1 | 150 | 2 | 95 | 193 | 210 | 100 | " | " |
| " ExBiting | 1 | | 1 | 6 | 12 | 21 | 100 | " | " |
| 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 | In the Circuit | Rule | | |
| Battery charging board | 1 | 2,5 | 4,5 | 13 | 80 | Rubber | Lead cov. & arm. |
| Central board for lighting forw. | 2 | 95 | 200 | 210 | 350 | " | " |
| Central board for lighting aft. | 2 | 95 | 200 | 210 | 100 | " | " |

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 | | | |
| SBP 1 Water Pumps | 1 | 25 | 43 | 44 | 60 | Rubber | Lead cov. & arm. |
| SBP 2 Water Pumps | 1 | 4 | 15 | 16 | 150 | " | " |
| SBP 3 Fuel transfer pumps | 1 | 70 | 76 | 87 | 48 | " | " |
| SBP 4 Condenser service Pumps | 1 | 50 | 55 | 69 | 80 | " | " |
| SBP 5 Condenser service Pumps | 1 | 50 | 58 | 69 | 86 | " | " |
| SBP 6 Boiler firing Equipment | 1 | 95 | 76 | 105 | 90 | " | " |
| SBP 7 Boiler Lighting-up Equipment | 1 | 6 | 3 | 21 | 96 | " | " |
| SBP 8 Boiler Room compressors | 1 | 25 | 27 | 44 | 100 | " | " |
| SBP 9 Boiler & Engine room Vent. Fans | 1 | 70 | 80 | 87 | 110 | " | " |
| SBP 10 L.P.S. Gen. Circulating Pumps | 1 | 70 | 74 | 87 | 92 | " | " |
| SBP 11 Refrigerating Machinery | 1 | 35 | 54 | 55 | 90 | " | " |
| SBP 12 Water service pumps forw. | 1 | 6 | 15 | 21 | 550 | " | " |
| SBP 13 Hydromores | 1 | 25 | 40 | 44 | 150 | " | " |
| SBP 14 Separators | 1 | 4 | 7,2 | 16 | 125 | " | " |
| SBP 15 Separators | 1 | 4 | 13,4 | 16 | 130 | " | " |
| SBP 16 Workshop Machinery | 1 | 16 | 26 | 33 | 100 | " | " |
| SBP 17 Cargo tank vent. fans | 1 | 6 | 18 | 21 | 450 | " | " |
| SBP 18 Bride | 1 | 10 | 25 | 27 | 600 | " | " |
| SBP 19 Galley | 1 | 35 | 53 | 55 | 150 | " | " |
| SBP 20 Salon pantry | 1 | 50 | 68 | 69 | 500 | " | " |
| SBP 21 Officer's Pantry | 1 | 50 | 46 | 69 | 140 | " | " |
| SBP 22 Crew's Pantry | 1 | 50 | 68 | 69 | 130 | " | " |
| SBP 23 Air conditioning machy. aft. | 1 | 95 | 72 | 105 | 150 | " | " |
| SBP 24 Air conditioning machy. forw. | 1 | 35 | 37,4 | 55 | 600 | " | " |
| SBP 25 Chemical feeding station | 1 | 2,5 | 2 | 13 | 160 | " | " |
| SBP 26 Engine Room Auxiliaries | 1 | 2,5 | 3,6 | 13 | 120 | " | " |
| SBP 27 Refrigerating machinery | 1 | 10 | 16 | 27 | 90 | " | " |

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 | In the Circuit | Rule | | | | |
| Lubricating Oil Pump | 2 | 25 | 1 | 16 | 31 | 33 | 18 | Rubber | Lead cov. & arm. |
| Condenser Main Extract. p. | 2 | 20 | 1 | 10 | 27 | 27 | 20 | " | " |
| Fuel oil transfer p. | 2 | 31 | 1 | 25 | 38 | 44 | 60 | " | " |
| Feedwater drain transp. | 2 | 13,5 | 1 | 6 | 17,5 | 21 | 80 | " | " |
| Gen. purpose compressor | 1 | 30 | 1 | 25 | 39 | 44 | 100 | " | " |
| Main circulating pump | 2 | 63 | 1 | 70 | 84 | 87 | 50 | " | " |
| Bilge pump | 1 | 42 | 1 | 50 | 52 | 69 | 90 | " | " |
| Basket pump | 1 | 42 | 1 | 50 | 52 | 69 | 100 | " | " |
| Atm. condenser circ. pump | 1 | 46 | 1 | 50 | 60 | 69 | 150 | " | " |
| Boiler feed water pump | 2 | 100 | 2 | 50 | 117 | 138 | 140 | " | " |
| Steering gear | 2 | 36 | 1 | 35 | 52 | 55 | 250 | " | " |
| Boiler Forced draught fan | 2 | 136 | 2 | 120 | 157 | 246 | 200 | " | " |
| Funnel Fan | 1 | 34 | 1 | 35 | 45 | 55 | 240 | " | " |
| Boiler room fan | 2 | 9,5 | 1 | 4 | 15 | 16 | 30 | " | " |
| Engine room fan | 4 | 9,5 | 1 | 4 | 15 | 16 | 40 | " | " |
| Diesel gen. cooling pump | 1 | 5,3 | 1 | 2,5 | 7,7 | 13 | 50 | " | " |
| Hydrophore pump | 4 | 5,5 | 1 | 2,5 | 8,1 | 13 | 40 | " | " |
| Air condition. compres. | 1 | 30 | 1 | 25 | 37,5 | 44 | 20 | " | " |
| Air condition. compres. | 1 | 15 | 1 | 6 | 20 | 21 | 30 | " | " |
| Air cond. vent fan | 1 | 8 | 1 | 2,5 | 10,5 | 13 | 30 | " | " |
| Turning gear | 1 | 5 | 1 | 2,5 | 7,5 | 13 | 60 | " | " |
| Refriger. compressor | 3 | 11 | 1 | 6 | 14,5 | 21 | 30 | " | " |

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.

BRODOGRADLIŠTE 3. MAJ
 RIJEKA

[Signature]

Electrical Contractors. Date

COMPASSES

Have the compasses been adjusted under working conditions. Yes

BRODOGRADLIŠTE 3. MAJ
 RIJEKA

[Signature]

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. Yes If so, state name of vessel. Petar Zoranic

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 Electrical equipment described herein has been installed under Special Survey in accordance with the Rules of the Society, approved plans and Secretary's letters.

The material and workmanship are good.

On completion of installation the generators were examined under full working conditions and for paralleling. The overload and reverse power trips tested and governors tested under full load with satisfactory results.

Insulation test carried out on the circuit and found satisfactory.

5m.3.58—Transfer. (MADE AND PRINTED IN ENGLAND)
 (The Surveyors are requested not to write on or below the space for Committee Minute.)

Total Capacity of Generators 1270 Kilowatts.

The amount of Fee ... £ 161-07-11 + 135.576.-din When applied for, *[Signature]*

19

When received,

Travelling Expenses (if any) £ : :

19

[Signature] for self and A. Butler
 Surveyor to Lloyd's Register of Shipping

Committee's Minute

FRIDAY 14 APR 1961

Assigned

See Rpt 46



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Lloyd's Register
 Foundation

[Handwritten]
 13.2.61