

2 MAY 1960

No. 9365

REPORT ON ELECTRIC PROPELLING MACHINERY

62

Received at London Office

of writing Report 23. 11. 19 59 When handed in at Local Office 19 Port of H A M B U R G

Survey held at H a m b u r g Date, First Survey 12th June, 1959 Last Survey 21st January, 1960

Book No. of Visits 7

Single or Twin Triple Screw vessel " L E N I N G R A D " Tons Gross - Net -

at Helsingfors By whom built Wärtsilä-koncernen A/B Sandvikens Skeppsdocka Yard No. 366 When built -

ion Switchboard Hamburg By whom made Siemens-Schuckertwerke Generator Nos. - Motor Nos. - When made -

ft Horse Power at Full Power - Total Capacity of Generators - kilowatts

achinery Nomenclature as per Rule - Owners - Port belonging to -

de for which Vessel is intended Ice Breaker

NS.— Have plans of the Machines, Control Gear, Cables and Circuits been submitted and approved yes

AM ENGINES.— Type of Engine No. of Engines R.P.M. Is a Governor fitted Is the speed variation as per Rule when load is thrown off Is an Emergency Governor fitted Is it arranged for hand tripping Does it trip the throttle If exhaust steam is admitted, is an automatic shut-off fitted Is provision made for bled steam and is a non-return or positive shut-off valve fitted Lubricating Oil.—State means provided for emergency supply

the emergency supply sufficient to maintain lubrication as per Rule Mechanical Balance.—Are the Engines and Generators balanced so as not to cause appreciable vibration

ENGINES.— Type of Engines R.P.M. Is a Governor fitted Is the speed variation as per Rule when load is thrown off Is an Emergency Governor fitted Does it operate as per Rule

ERATORS.— Direct or Alternating Current No. of Generators If A.C. state frequency at full load Amps. per Generator Have certificates of works tests been applied and the results found as per Rule Ventilation.—State how arranged (open or closed system) Are ventilating arrangements satisfactory Heating when Idle.—What provision is made Facilities for Inspection and Repair.—Are these as per Rule

wear-down gauges supplied Bilges.—Are the arrangements to prevent accumulation of bilge-water under the machines satisfactory

MOTORS.— S.H.P. per Motor at full power No. of Motors Single or double unit Volts per Motor Have certificates of works tests been supplied and the results found as per Rule A.C. Motors.—Is provision made for speeding the slip rings Do the Motors remain in synchronism under all normal conditions of running D.C. Motors.—If the system permits speeding at light loads are overspeed protection devices fitted

EXCITATION.— Is power for excitation taken from the ship's Auxiliary Generators - If so, state voltage - and excitation amperes at full power - kilowatts for excitation - State excitation arrangements for Propulsion Generators 5 - Motor/Generator Sets. One for each propulsion circuit (3) and one standby for port and starboard circuits and one standby for middle propulsion circuit Propelling Motors see generators Is an alternative means of excitation provided yes

the certificates of works tests been supplied - and found as per Rule -

CONTROL.— Position of Main Control Panel - Is it comply with the requirements regarding position - , grouping of controls yes , instruments yes , insulating materials (state type) dead front construction , spacing and shielding of live parts yes , accessibility yes , position of fuses yes , fitting of screws and nuts yes , labelling yes , fuses for voltmeters, pilot lamps, etc. yes , provision for manual operation of contactors, etc. (state method employed) Air operated circuit breakers which can also be operated with hand wheels. Selection of propulsion machines through hand operated change-over knife type switches. Hanging of instrument cases Bakelite , provision of renewable tips on switches subject to arcing yes , capability of withstanding shock and inclination yes , operation with high and low voltage yes , rustproofing of parts. Overload and Short Circuit Protection.—State means provided

See remarks 1

What load is it set to operate to be tested and Has it been tripped by hand when running at full power and found satisfactory set on board. fuses of an approved type yes

Earth Detection.—Is the main circuit provided with means for detecting earths yes Are aural and visual alarms fitted yes Is main power interrupted on earth fault no If a limiting resistance is in the earth detecting circuit what is the ohmic value see remarks 2 What earth leakage current is necessary to operate the device If a switch is used to disconnect the aural signal does it automatically give visual indication yes Are the excitation circuits provided with means for earth detection yes

Mechanical Protection.—Are circuits above 250 volts D.C. or 150 volts A.C. to earth protected as per Rule yes

Engine or Deck Control.—Is bridge control provided yes If so, from how many stations - can it be operated freely without producing overloads or loads in excess of the working capacity of the plant - and without reference to electrical instruments - Is an emergency control provided in the engine room yes and can the transfer to this control be made quickly in the engine room yes Can the emergency control be rendered mechanically independent of the deck control yes

Instruments and Gauges.—State Instruments provided for each Generator Ammeter, voltmeter and wattmeter. for each Motor Power instruments and ammeter (E.R. control pulpit) Is an Insulation Tester provided

Overload Protection.—Are all shunt field circuits protected as per Rule yes D.C. Systems.—If the Generators are connected in series state means provided to prevent reversal of direction of rotation of the Prime Movers Field circuits disconnected through relays operated by generator contactors. Two settings provided 1) 240 rpm/120secs. time lag. 2) 200 rpm instantaneous

the Propulsion Generators also used alternatively for other purposes - If so, is provision made for overload protection, voltage adjustment, etc. -

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Reversing Switches.—If any are provided are they interlocked as per Rule yes no. Resistances.—Are resistances for synchronous motor fields insulated as per Rule — Temperature Alarm.—Are machines with enclosed ventilating system, etc., fitted with temperature alarm —

CONDUCTORS & CABLES.—Are all essential Conductors stranded as per Rule — Are the ends of Paper and Varnished Cambric Insulated Cables sealed — Are all Cables carrying A.C. constructed and installed as per Rule — Have all Main Cables been tested by the Surveyors at the works —

SECONDARY BATTERIES.—Are Batteries used for starting Main Propulsion Engines — If so, have full particulars of rating been submitted and approved — Have they been tested under working conditions and do they give the required number of starts — Are they installed as per Rule — Are the charging arrangements satisfactory —

SPARE GEAR.—If engaged on open sea service has a list of spare gear been submitted and approved — Is a list of the articles supplied attached to this report — Are they stored as per Rule —

ELECTRIC PROPULSION EQUIPMENT CONDUCTORS

DESCRIPTION	CONDUCTORS		MAXIMUM CURRENT—AMPERES*		Rule	MAXIMUM VOLTAGE	INSULATED WITH	PROTECTIVE COVER
	No. in parallel per Pole	Sectional Area sq. in. or sq. mm.	In Circuit					
			When Running	When Manœuvring				
MAIN GENERATORS								
GENERATOR FIELDS								
MAIN MOTORS								
MOTOR FIELDS								
CONTROL CIRCUITS								
OTHER CIRCUITS:—								

*For field circuits the "Hot" and "Cold" value should be given.

SIEMENS-SCHUCKERTWERKE
AG
The foregoing is a correct description.
W. W. Morris

Electrical Engineers.

Date 26 Nov 1959

COMPASSES.—Are Single-Conductor circuits carrying direct current arranged with lead and return Conductors fitted as close to one another as possible — Have the Compasses been adjusted under working conditions — Builders' Signature. Date

Is this machinery duplicate of a previous case yes no. If so, state name of vessel "Moscow" (Yard No. 365)

GENERAL REMARKS.—
1) Overload and Short Circuit Protection
Circuit Protection:— 3 relays in series are provided for each circuit.
a) Alarm at 120% F.L. amps.
b) Overcurrent protection at 150% F.L. amps/9 mins. time delay.
c) Instantaneous short circuit protection at 3 x overcurrent setting.
(b) and (c) trip generators excitation supply contactor.
Generator Protection
Short circuit protection relay provided for each generator which operates at 3 x overcurrent setting/secs. time delay. Relay trips generator excitation contactor, which in turn trips generator circuit.
2) Earth Detection Systems:—
1. Main Propulsion Circuits (3):— Each circuit (3) provided with earth indicating control equipment with 220 volts A.C. Gives alarm and indication in Engine Room and indication only at all bridge control stations. Earth control circuit fitted with 2 - 2000 ohm resistances in series with one another in parallel to earth connection. 10 microfarad condenser in series with 220 volts A.C. supply also fitted.
2. Propulsion Excitation Circuits:— One ohmmeter with selector switch.
3. Exciters Excitation Circuits:— Earth lamps.
Total capacity of generators for propulsion purposes _____ kilowatts.

The amount of Fee See Rpt. 10 } When applied for, 19
Travelling Expenses (if any) £ : : } When received, 19

W. W. Morris
Surveyor to Lloyd's Register of Shipping

Date

Committee's Minute
Assigned *Su Hfs 8382*
FRIDAY 16 FEB 1962



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(The Surveyors are requested not to write on or below the space for Committee Minute.)