

pt. 4d.

No. 92652

REPORT ON ELECTRIC PROPELLING MACHINERY

Received at London Office

Date of writing Report 28/6/1962 When handed in at Local Office 17.8.1962 Port of GLASGOW. GLASGOW
 No. in Survey held at Dumbarton Date, First Survey 25.4.62. 19 Last Survey 18.6.1962
 Reg. Book. 7/43160 on Twin Triple Quadruple Screw vessel D-E ARAMOANA Tons Gross 4160 Net 1431
 Built at DUMBARTON By whom built Wm. Denny & Bros. Ltd., Yard No. 1502 When built 1962
 Electrical Machines made at Stafford By whom made English Electric Co. Ltd. Generator Nos. 36-41 DCH0511 When made 1961
 Motor Nos. 25-28
 Shaft Horse Power at Full Power 9000 Total Capacity of Generators 7320 kilowatts
 Machinery Numeral as per Rule 2118 Owners New Zealand Government Port belonging to Wellington
 Trade for which Vessel is intended Railway Ferry

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

STEAM 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 valve — If exhaust steam is admitted, is an automatic shut-off fitted — Is provision made for bleed steam — and is a non-return or positive shut-off valve fitted — Lubricating Oil.— State means provided for emergency supply — Is 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 —

OIL ENGINES.— Type of Engines 16 C.S.V.M. R.P.M. 750 Is a Governor fitted yes Is the speed variation as per Rule when load is thrown off yes Is an Emergency Governor fitted no Does it operate as per Rule —

GENERATORS.— Direct or Alternating Current D.C. No. of Generators 6 If A.C. state frequency at full load — Kw. per Generator 1220 Volts per Generator 507 Amps. per Generator 2410 Have certificates of works tests been supplied yes and the results found as per Rule yes Ventilation.— State how arranged (open or closed system) open Draught. Duct. Vent. Forced Are ventilating arrangements satisfactory yes Heating when Idle.— What provision is made Anti-condensation heaters Facilities for Inspection and Repair.— Are these as per Rule yes Are wear-down gauges supplied yes Bilges.— Are the arrangements to prevent accumulation of bilge-water under the machines satisfactory yes

MOTORS.— S.H.P. per Motor at full power 2250 No. of Motors 4 Single or double unit single Volts per Motor 750 Amps. per Motor 2410 Have certificates of works tests been supplied yes and the results found as per Rule yes A.C. Motors.— Is provision made for machining the slip rings — Do the Motors remain in synchronism under all normal conditions of running — D.C. Motors.— If the system permits overspeeding at light loads are overspeed protection devices fitted yes

EXCITATION.— Is power for excitation taken from the ship's Auxiliary Generators yes If so, state voltage 120 and excitation amperes at full power 26 kilowatts for excitation 3.25 State excitation arrangements for Propulsion Generators Separately excited from three field exciters

and Propelling Motors separately excited Is an alternative means of excitation provided yes Have certificates of works tests been supplied yes and found as per Rule yes

CONTROL.— Position of Main Control Panel Platform Aux. Eng. Rm. Port. Emergency in aft Eng. Rm. Port and Fwd. Eng. Stbd. Does it comply with the requirements regarding position yes, grouping of controls yes, instruments yes, insulating materials (state type used) dead front type Sindanyo Ceramic, spacing and shielding of live parts yes, accessibility yes, position of fuses yes, locking of screws and nuts yes, labelling yes, fuses for voltmeters, pilot lamps, etc. yes, provision for manual operation of contactors, etc. (state method employed) Contactors not essential for manoeuvring, motor or hand operated controllers through direct shaft.

earthing of instrument cases yes, 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 S/C relay on loop interrupting excitation.

At what load is it set to operate 200% Has it been tripped by hand when running at full power and found satisfactory yes Are 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 by an earth fault no If a limiting resistance is in the earth detecting circuit what is the ohmic value 250 What earth leakage current is necessary to operate the device 0.5Amp 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

Bridge or Deck Control.— Is bridge control provided yes If so, from how many stations 3 can it be operated freely without producing currents or loads in excess of the working capacity of the plant yes and without reference to electrical instruments yes 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 V/M(2); KW:A/M (2) per loop

and for each Motor S.H.P. Tachometer (6) Is an Insulation Tester provided yes

Discharge 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 Tacho. Genr. feeding field contactor on each engine.

Are the Propulsion Generators also used alternatively for other purposes no If so, is provision made for overload protection, voltage adjustment, etc. —

Reversing Switches.—If any are provided are they interlocked as per Rule..... 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. Yes 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 makers' works. yes

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. yes Is a list of the articles supplied attached to this report. yes Are they stored as per Rule. yes

ELECTRIC PROPULSION EQUIPMENT CONDUCTORS.

DESCRIPTION	CONDUCTORS		MAXIMUM CURRENT—AMPERES*			MAXIMUM VOLTAGE	INSULATED WITH	PROTECTIVE COVERING
	No. in parallel per Pole	Sectional Area sq. in. or sq. mm.	In Circuit When Running	When Manoeuvring	Rule			
MAIN GENERATORS	4	91/.093	2410	2800	2400	630	Butyl	PCPB
GENERATOR FIELDS	1	7/.036	17	20	38	182	"	"
MAIN MOTORS	4	91/.093	2410	2800	2400	960	"	"
MOTOR FIELDS	1	7/.044	26	30	48	148	"	"
CONTROL CIRCUITS			All propulsion control circuits 7 strands in accordance with Rule Requirements and approved drawings.					
OTHER CIRCUITS:—								

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

The foregoing is a correct description,

H. J. Denny

For THE ENGLISH ELECTRIC CO. LTD.

Electrical Engineers.

Date

16.8.62

COMPASSES.—Are Single-Conductor circuits carrying direct current arranged with lead and return Conductors fitted as close to one another as possible Yes

Have the Compasses been ~~examined~~ tested under working conditions. Yes

WILLIAM DENNY & BROTHERS LIMITED.

H. J. Denny SECRETARY
LEVEN SHIPYARD, DUMBARTON.

Builders' Signature.

Date

3/8/62

Is this machinery duplicate of a previous case. No If so, state name of vessel.

General Remarks (State quality of workmanship, opinions as to class, &c.)

The electrical propulsion equipment of this vessel has been installed under Special Survey in conformity with the Society's Rules and Regulations and in accordance with the Secretary's letter and the approved plans or equivalent thereto.

The materials used are of a good quality and the design and workmanship are good.

On completion the equipment has been tried out under full working conditions and found satisfactory.

This equipment is in my opinion suitable for a classed vessel.

Total capacity of generators for propulsion purposes 7320 kilowatts.

Glasgow £71. 6. -
Birmingham £248. 10. -
Leeds £355. 6. -
The amount of Fee ... 29.6.10(6)

Travelling Expenses (if any) £ 41 : 13 : 3 1/2 When received, 12. 10. 19

Date entry made in RFB. 29.6.62

Surveyor's Initials. *ash*

acbailes
Surveyor to Lloyd's Register of Shipping.

Date 18/8/62

Committee's Minute GLASGOW 21 AUG 1962

Assigned SEE ACCOMPANYING MACHINERY REPORT

CR-FAF-TR17-48



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