

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office

12 FEB 7

Date of writing Report 10-2-1937 When handed in at Local Office 10-2-1937 Port of BARROW

No. in Survey held at BARROW Date, First Survey 18-1-37 Last Survey 10-2-1937
 Reg. Book. " " (Number of Visits 8)

on the M.V. SHOALFISHER. Tons { Gross
 Not

Built at BARROW By whom built VICKERS ARMSTRONGS L^d Yard No. 726 When built 1937

Owners JAMES FISHER & SONS L^d Port belonging to

Electric Light Installation fitted by VICKERS ARMSTRONGS L^d Contract No. 726 When fitted 1937

Is the Vessel fitted for carrying Petroleum in bulk No.

System of Distribution Double wire

Pressure of supply for Lighting 220 ✓ volts, **Heating** - volts, **Power** 220 ✓ volts.

Direct or Alternating Current, Lighting Direct ✓ **Power** Direct ✓

If alternating current system, state frequency of periods per second ✓

Has the **Automatic Governor** been tested and found efficient when the whole load is suddenly thrown on or off Yes. ✓

Generators, do they comply with the requirements regarding temperature rise Yes ✓, are they compound wound Yes ✓
 are they over compounded 5 per cent. Yes ✓, if not compound wound state distance between each generator ✓

Where more than one generator is fitted are they arranged to run in parallel Two 15kw. sets only ✓, is an adjustable regulating resistance fitted in series with each shunt field Yes ✓ Have certificates of test results for machines under 100 kw. been submitted and approved Yes ✓ Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing ✓ ✓

Are all terminals accessible, clearly marked, and furnished with sockets Yes ✓, are they so spaced or shielded that they cannot be accidentally earthed, short circuited, or touched Yes ✓ Are the lubricating arrangements of the generators as per Rule Yes ✓

Position of Generators Engine Room 15KW sets one port one starboard ✓, is the ventilation Yhw. set starboard aft. ✓
 in way of the generators satisfactory Yes ✓ are they clear of all inflammable material Yes ✓ if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the generators ✓ and ✓

are the generators protected from mechanical injury and damage from water, steam or oil Yes ✓, are their axes of rotation fore and aft Yes ✓

Earthing, are the bedplates and frames of the generating plant efficiently earthed Yes ✓ are the prime movers and their respective generators in metallic contact Yes ✓ **Main Switch Boards**, where placed Engine Room Fore. ✓

If the generators and main switchboard are not placed in the same compartment, is each generator provided with a fuse on each insulated pole as near as possible to the terminals of the generator, additional to that provided on the main switchboard ✓

Switchboards, are they placed in accessible positions, free from inflammable gases and acid fumes Yes ✓, are they protected from mechanical injury and damage from water, steam or oil Yes ✓, if situated near unprotected woodwork or other combustible material, state distance of same horizontally from or vertically above the switchboards ✓ and ✓, are they constructed wholly of durable, non-ignitable non-absorbent materials Yes ✓, is all insulation of high dielectric strength and of permanently high insulation resistance Yes ✓

is it of an approved type Yes ✓, if semi-insulating material is used, are all conducting parts insulated from the slab with mica or micamite or other non-hygroscopic insulating material, and the slab similarly insulated from its framework ✓, is the non-hygroscopic insulating material of an approved type ✓, and is the frame effectively earthed Yes ✓. Are the fittings as per Rule regarding: — spacing or shielding of live parts Yes ✓, accessibility of all parts Yes ✓, absence of fuses on back of board Yes ✓, temperature rise of omnibus bars Yes ✓, individual fuses to voltmeter, pilot or earth lamp Yes ✓, are moving parts of switches alive in the "off" position No ✓ are all screws and nuts securing connections effectively locked Yes ✓ are any fuses fitted on the live side of switches No ✓

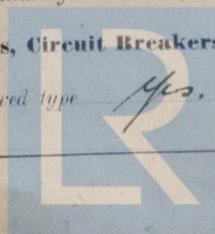
Main Switchgear, description of switchgear for each generator and each outgoing circuit, and arrangement of equalizer switches For 15kw. gens :- D.P. C.B. with interlocked equaliser switch + 2h. + reverse current trips. For 7kw. gen. D.P. switch + D.P. fuses. For each outgoing circuit :- D.P. switch + D.P. fuses.

Are turbine driven generators fitted with emergency trip switch as per rule ✓ Are cupboards or compartments containing switchboards composed of fire-resisting material or lined with approved material Yes ✓ **Instruments** on main switchboard 3 ✓ ammeters 2 ✓

voltmeters ✓ synchronising device for paralleling purposes. For compound machines is the ammeter connected on the opposite pole to equaliser connection

Earth Testing, state what means are provided at the main switchboard for indicating the state of the insulation of the system Yes ✓ Earth lamps. ✓

Switches, Circuit Breakers and Fusible Cut-outs, do these comply with the requirements of the Rules Yes ✓ are the fusible cutouts of an approved type Yes ✓ have the reversed



current protection devices been tested under working conditions *Yes* ✓

construction, protection, insulation, material, and position of these as per rule *Yes* ✓

Cables: Single, twin, concentric, or multicore *Single* ✓ are the cables insulated and protected as per Tables IV, V, X or XI of the Rules *Yes* ✓

If the cables are insulated otherwise than as per Rule, are they of an approved type *Yes* ✓

any point of the installation under maximum load *Spalls* ✓

area of 0.04 square inch and above provided with soldering sockets *Yes* ✓

If conductors are paper or varnished cambric insulated, is the dielectric at the exposed ends of the conductor protected from moisture by being suitably sealed with insulating compound *Yes* ✓, or waterproof insulating tape *Yes* ✓

not exposed to drip or accumulation of water or oil, or to high temperature from boilers, steam pipes, uptakes or other hot objects, or to avoidable risk of mechanical damage *Yes* ✓

Are cables in machinery spaces, galleys, laundries, bathrooms and lavatories lead covered or run in conduit *Yes* ✓

Support and Protection of Cables, state how the cables are supported and protected *Engine Room. L.C.A or L.C. clipped steel work or tray. Through Holes: L.C. clipped to solid tray with sheet metal covers. Acc: - L.C. clipped to wood.* ✓

If cables are run in wood casings, are the casings and caps secured by screws *Yes* ✓, are the cap screws of brass *Yes* ✓, are the cables run in separate grooves *Yes* ✓. If armoured and lead covered cables are secured by metal clips, are the clips spaced as per Table VIII *Yes* ✓

Refrigerated Chambers, are the cables and fittings in accordance with the special requirements *Yes* ✓

Joints in Cables, state if any, and how made, insulated, and protected *None made* ✓

Watertight Glands and Deck Tubes, are all cables passing through decks and watertight bulkheads provided with deck tubes or watertight glands *Yes* ✓

Bushes in Beams and Non-watertight Partitions, where unarmoured cables pass through beams and non-watertight partitions, are the holes efficiently bushed *Yes* ✓, state the material of which the bushes are made *Brass* ✓

Earthing Connections, state what earthing connections are fitted and their respective sectional areas *Yes* ✓

are their connections made as per Rule *Yes* ✓

Alternative Lighting, are the groups of lights in the propelling machinery space arranged as per Rule *Yes* ✓

Emergency Supply, state position and method of control of the emergency supply and how the generator is driven *Yes* ✓

Navigation Lamps, are these separately wired *Yes* ✓, controlled by separate switch and separate fuses *Yes* ✓, are the fuses double pole *Yes* ✓

are the switches and fuses grouped in a position accessible only to the officers on watch *Yes* ✓

has each navigation lamp an automatic indicator as per Rule *Yes* ✓

Secondary Batteries, are they constructed and fitted as per Rule *Yes* ✓

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

are any fittings placed in spaces in which goods are liable to be stacked in close proximity to them; if so, how are they protected *Yes* ✓

are any fittings placed in spaces where inflammable or explosive dust or gases are liable to be present, if so, how are they protected *Yes* ✓

how are the cables led *Yes* ✓

where are the controlling switches situated *Yes* ✓

are all fittings suitably ventilated *Yes* ✓, are all switches and lampholders constructed wholly of non-ignitable, non-absorbent materials *Yes* ✓

Heating and Cooking Appliances, are they constructed and fitted as per Rule *Yes* ✓, are air heaters constructed and fitted as per Rule *Yes* ✓

Searchlight Lamps, No. of *Yes* ✓, whether fixed or portable *Yes* ✓, are their fittings as per Rule *Yes* ✓

Arc Lamps, other than searchlight lamps, No. of *Yes* ✓, are their live parts insulated from the frame or case *Yes* ✓, are their fittings as per Rule *Yes* ✓

Motors, are their working parts readily accessible *Yes* ✓, are the coils self-contained and readily removable for replacement *Yes* ✓

are the brushes, brush holders, terminals and lubricating arrangements as per Rule *Yes* ✓, are the motors placed in well-ventilated compartments in which inflammable gases cannot accumulate and clear of all inflammable material *Yes* ✓, are they protected from mechanical injury and damage from water, steam or oil *Yes* ✓, are their axes of rotation fore and aft *Yes* ✓, if situated near unprotected woodwork or other combustible material, are the motors of the totally enclosed, pipe ventilated, forced draught, drip or flame proof type *Yes* ✓, if not of this type, state distance of the combustible material horizontally or vertically above the motors *Yes* ✓ and *Yes* ✓

have machines of over 100 BHP been inspected by the Surveyors during manufacture and testing *Yes* ✓

Control Gear and Resistances, are the generator field and motor speed regulators, starters and controllers constructed and fitted as per Rule *Yes* ✓

Lightning Conductors, where lightning conductors are required, are these fitted as per Rule *Yes* ✓

Ships carrying Oil having a Flash Point less than 150 F. Have the special requirements of the Rules been complied with regarding switches, joint boxes, section and distribution boards, protection of cables, method of distribution, lead of cables, lights and fittings *Yes* ✓

are all fuses of the fitted cartridge type *Yes* ✓ are they of an approved type *Yes* ✓

If portable lamps for use in dangerous spaces are supplied, are they of a self-contained, battery-fed type approved by the Home Office *Yes* ✓

Spare Gear, if the vessel is for open sea service have spares been supplied as per Rule *Yes* ✓

Joint Boxes, Section and Distribution Boards, is the

Fall of Pressure, state maximum between bus bars and

Cable Sockets, are the ends of all cables having a sectional

Paper Insulated and Varnished Cambric Insulated Cables.

Cable Runs, are the cables fixed as far as possible in accessible positions

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts	Volts	Amps.	Revs. Per Min.		Fuel Used	Flash Point of Fuel
MAIN	2	2 x 1530	220	68.2	1000	Lister Diesel		
AUXILIARY	1	77	220	31.8	1000	Lister Diesel with alternative drive from main engine shaft.		
EMERGENCY		37						
ROTARY TRANSFORMER								

GENERATOR, LIGHTING AND HEATING CONDUCTORS.

DESCRIPTION	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT AMPERES		Approximate Length (Lead and Return) Feet	Insulated with	HOW PROTECTED
	No. per Pole	Total Nominal Area per Pole Sq. Ins.	No.	Diameter	Circuit	Rule			
MAIN GENERATOR	1	.06	19	.064	68.2	83	42	V.I.R.	L.C.A+B.
EQUALISER CONNECTIONS	1	.0148	7	.052		37	42	do.	do.
AUXILIARY GENERATOR	1	.0148	7	.052	31.8	37	72	do.	do.
EMERGENCY GENERATOR									
ROTARY TRANSFORMER MOTOR GENERATOR									
ENGINE ROOM	1	.0145	7	.052	28.7	37	48	V.I.R.	L.C.A+B.
BOILER ROOM									
AUXILIARY SWITCHBOARDS									
Accommodation Navigation	1	.0045	7	.029	9.76	18.2	150	V.I.R.	L.C.
	1	.005	3	.039	1.15		120	V.I.R.	L.C.
ACCOMMODATION									
WIRELESS	1	.0045	7	.029	12	18.2	150	V.I.R.	L.C.
SEARCHLIGHT									
MASTHEAD LIGHT	1	.002	3	.029	3	7.8	360	V.I.R.	L.C.
SIDE LIGHTS	1	.002	3	.029	3	7.8	40	do.	do.
COMPASS LIGHTS	1	.002	3	.029	1	7.8	30	do.	do.
DECK LIGHTS	1	.002	3	.029	5	7.8	80	do.	do.
CARGO LIGHTS	1	.002	3	.029	15	7.8	304	do.	do.
ARC LAMPS									
HEATERS OIL FUEL	1	.0145	7	.052	40	37	30	V.I.R.	L.C.A+B.

MOTOR CONDUCTORS.

DESCRIPTION	No. of Motors	CONDUCTORS		COMPOSITION OF STRAND		TOTAL MAXIMUM CURRENT AMPERES		Approximate Length (Lead and Return) Feet	Insulated with	HOW PROTECTED
		No. per Pole	Total Nominal Area per Pole Sq. Ins.	No.	Diameter	In Circuit	Rule			
BALLAST PUMP										
MAIN BILGE LINE PUMPS										
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP										
SANITARY PUMP										
CIRC. SEA WATER PUMPS										
CIRC. FRESH WATER PUMPS										
AIR COMPRESSOR										
FRESH WATER PUMP										
ENGINE TURNING GEAR										
ENGINE REVERSING GEAR										
LUBRICATING OIL PUMPS	1	1	.002	3	.029	1.3	7.8	120	V.I.R.	L.C.A+B.
OIL FUEL TRANSFER PUMP	1	1	.002	3	.029	7.6	7.8	120	do.	do.
WINDLASS	1	1	.04	19	.052	64	64	420	do.	L.C.
WINCHES, FORWARD	1	1	.03	19	.044	52	53	390	do.	do.
WINCHES, AFT	1	1	.03	19	.044	52	53	45	do.	do.
STEERING GEAR										
(a) MOTOR GENERATOR										
(b) MAIN MOTOR	1	1	.0145	7	.052	25.5	37	90	do.	do.
WORKSHOP MOTOR										
VENTILATING FANS										
LUB OIL STANDBY	1	1	.0045	7	.029	15.8	18.2	36	do.	L.C.A+B.
AFT CAPSTAN	1	1	.0045	7	.029	23	18.2	120	do.	L.C.
FUEL OIL SEPARATOR	1	1	.002	3	.029	2.6	7.8	120	do.	L.C.A+B.

All Conductors are of annealed copper conforming to British Standard Specification No. 7 (or International Electro-technical Commission Publication No. 28).

The Insulated Conductors are guaranteed to withstand the immersion and resistance tests specified in the Rules.

The foregoing is a correct description.

J. S. Smyth (Vickers Armstrong Ltd) Electrical Engineers.

Date 10.2.37

COMPASSES.

Distance between electric generators or motors and standard compass 12 ft. (Steering motor)

Distance between electric generators or motors and steering compass 6 ft. do.

The nearest cables to the compasses are as follows:—

A cable carrying 25.5 Amperes 12 feet from standard compass 6 feet from steering compass.

A cable carrying .1 Amperes *in* feet from standard compass 6 feet from steering compass.

A cable carrying .1 Amperes 6 feet from standard compass *in* feet from steering compass.

Have the compasses been adjusted with and without the electric installation at work at full power *yes*.

Has the effect of switching on and off circuits, motors and other electro-magnetic apparatus within the vicinity of the compasses been noted *yes*.

The maximum deviation due to electric currents was found to be *nil* degrees on *every* course in the case of the standard compass, and *nil* degrees on *every* course in the case of the steering compass.

FOR VICKERS-ARMSTRONGS LIMITED.

R. Sheeman Builder's Signature.

Date 10/2/37

ENGINEERING MANAGERS
BARROW WORKS.

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

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

This installation has been fitted on board under Special Survey & in accordance with the approved plans & has been tested under full working conditions & found satisfactory.

The materials & workmanship have been found to be good & sound.

Total Capacity of Generators 37 Kilowatts.

The amount of Fee ... £ 24 : 5 : - When applied for, 10.2.37.

Travelling Expenses (if any) £ 3 : 7 : - When received, 13.2.37 13/2

R. C. Clayton & Ince
Surveyor to Lloyd's Register of Shipping.

Committee's Minute TUE 16 FEB 1937

Assigned See minute on p. 264

501, 502, 503. - Transfer. The Signatories are requested not to write on or below the space for Committee's Minute.



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