

REPORT ON ELECTRICAL EQUIPMENT

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Date of writing Report 4-4-1961 When handed in at Local Office 19 APR 1961 19 1961 Received at London Office
Port of SUNDERLAND

No. in Survey held at SUNDERLAND Date, First Survey 21st OCTOBER 1960 Last Survey 21st MARCH 1961
Reg. Book (No. of Visits 12)

92212 on the M.V. "MONTROSE" Tons { Gross 1493
Net 1616

Built at SUNDERLAND By whom built BARTRAM & SONS LTD Yard No. 386 When built 1961

Owners MONTSHIP LINES LTD. Port belonging to LONDON

Installation fitted by BARTRAM & SONS LTD AND THE SUNDERLAND FORGE & ENG. CO. LTD When fitted 1961

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. No Radar YES

Plans, have they been submitted and approved Yes System of Distribution Two wire 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

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

Have machines 100 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 — Position of Generators Starboard side of Engine

Room, 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 Aft end of Engine Room.

on special platform.

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 Insulation., 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 Triple pole circuit breakers with overload, reverse

current and performance trips

and the switch and fuse gear (or circuit breakers) for each outgoing circuit Double pole circuit breakers or double

pole switch and fuses.

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

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

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

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 Antic, are all fuses labelled Yes If circuit breakers are provided for the generators, at what

overload do they operate 25% overload with time lag., and at what current do the reverse current protective

devices operate 150 amps 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 less than 6% volts. Are all ~~paper insulated and~~ varnished cambric insulated cables sealed at the ends Yes

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 V.C.L.B. & Bifilith P.C.P. & Balleys. Safe Rubber P.C.P. & B.

and laundries — State how the cables are supported or protected Main cable run in cargo spaces

supported on steel plates & protected by sheet steel covers. All other cables supported on

steel plates, ways, wood grounds or secured direct to structure. All cables are

adequately protected.

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

Have refrigeration fan motors been constructed under survey No was last certificate accepted and test certificates supplied Yes

Are the motors accessible for maintenance at all times Yes

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, state battery capacity in ampere hours 60 Where required to do so does it comply with 1948 International Convention -

Lighting, is fluorescent lighting fitted No If so, state nominal lamp voltage - and compartments where lamps are fitted -

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

Searchlights, No. of Wing whether fixed or portable -, are they of the carbon arc or of the filament type -

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 pump compartment Yes Have motors of 100 BHP and over been inspected by the Surveyors during manufacture and testing -

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 -

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 -, 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 - Are all cables lead covered as per Rule -

E.S.D., if fitted state make Submarine Signal Location of transmitter and receiver Deck Bottom Port side A. 35/137

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	
			Kw. per Generator	Volts	Amps.	Revs. per Min.	TYPE	MAKER
MAIN ...	3	Thomas B. Thwing	275	220	1250	600	Oil Engine	Blackburn Co. Ltd.
EMERGENCY ...								
ROTARY TRANSFORMER								

GENERATOR CABLES

DESCRIPTION	No. of	Kw.	CONDUCTORS		MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (feet 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 ...	3	275	4	37/093	1250	1452	42/114/26	V.C.	L.C.B.
" " EQUALISER ...			2	37/093	-	726	2/51/63	"	"
EMERGENCY GENERATOR ...									
ROTARY TRANSFORMER: MOTOR									
" " GENERATOR ..									

MAIN DISTRIBUTION CABLES (to Auxiliary Switchboards, etc.)

DESCRIPTION	No. of	Kw.	No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES	APPROX. LENGTH (feet plus return feet)	INSULATION	PROTECTIVE COVERING
Forward Watch Panel	1			37/103	230	326	660	Butyl Rubber P.C.A.-B.
Watch Panel	1			37/103	235	326	480	"
Up Watch Panel	1			37/072	155	204	390	"
Cargo Refrig Panel	2			37/072	247	408	240	"
Watch Panel Fans Section Board H	1			7/052	477	88	60	"
" " Dist. Bd H1	1			7/052	159	48	390	"
" " " H2	1			7/052	318	88	480	"
Accommodation Vent Fans " V.	1			7/064	455	115	210	"
Radar	1			7/044	6	31	270	V.I.R.
Gyro Compass Dist. Bd G	1			7/036	5	24	270	"
Wireless	1			7/044	15	72	270	Butyl Rubber
Lighting Section Board A	1			7/083	103	161	180	"
" " B	1			7/044	45	72	270	"
" " C	1			7/064	51	115	480	"
Lighting Dist. Board New Bridge Dist. Bd A1	1			7/044	18	31	60	V.I.R.

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

DESCRIPTION	No. in Parallel per Pole	Sectional Area or No. and Dia. of Strands Sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (feet plus return feet)	INSULATION	PROTECTIVE COVERING
			In the Circuit	Rule			
Lighting Dist. Board Boat Deck A2	1	7/044	14	31	30	V.I.R.	P.C.A.-B.
Bridge Deck Post A3	1	7/044	19	31	60	"	"
Bridge Deck Stair A4	1	7/044	18	31	60	"	"
Upper Deck Post B1	1	7/044	14	31	160	"	"
Upper Deck Stair B2	1	7/044	20	31	50	"	"
Second Deck Post B3	1	7/036	4	24	200	"	"
Second Deck Stair B4	1	7/036	7	24	70	"	"
Cargo Lighting Fan C1	1	7/064	27	61	270	Butyl Rubber	"
Cargo Lighting Hatch C2	1	7/064	24	61	10	"	"
Cargo Lighting Off C3	1	7/064	25	61	390	"	"
Engine Room Post E1	1	7/064	20	61	120	"	"
Engine Room Stair E2	1	7/064	20	61	120	"	"
Domestic Refrig Section Board R	1	7/052	25	48	240	"	"
Head Water Pumps Dist. Board F	1	7/036	13.2	24	180	V.I.R.	"
Galley & Pantry Accessories Section Board P	1	7/083	12.7	161	120	Butyl Rubber	"
" " Dist. Board P1	1	7/036	7.5	24	10	V.I.R.	"
Pantry Accessories " " P2	1	7/052	25.8	48	180	Butyl Rubber	"
Saloon Pantry " " P3	1	7/064	50.8	61	170	"	"
Navigation Aids " " N	1	7/044	20	31	270	V.I.R.	"
Navigation Indicator	1	3/036	1	10	10	"	"
Hydraulic Hatch Pump Section Bd K	1	37/072	140	204	480	Butyl Rubber	"
Slow Connection Box	1	37/103	26	326	270	"	"
Suez Canal Propeller (Suez only)	1	19/044	34	72	180	V.I.R.	"
Engine Room Ventilation Section Panel	1	7/044	76	115	80	V.C.	L.C.B.
Oil Burning Plant Section Panel	1	7/044	45.2	92	130	V.C.	"
Grain Hatchway Dist. Board	1	7/064	38.4	115	150	"	"
Head Water Generator Plant Dist. Bd	1	7/064	20.5	46	150	"	"
Head Valve Cooling Pump " "	1	7/036	6.4	24	80	"	"
Engine Light & Alarm " "	1	7/036	15	24	130	"	"
Engine Room Miscellaneous Pumps " "	1	7/044	26	31	200	"	"

MOTOR CABLES

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	B.H.P.						No.		
Air Compressor	2	63	1	37/072	226 ✓ 260	110	V.C.		L.C.B.	
Piston Cooling Pump	2	50	1	19/083	185 ✓ 202	110	"		"	
S.W. Circulating Pump	1	32	1	7/064	122 ✓ 143	160	"		"	
Ballast Pump	1	32	1	19/064	122 ✓ 143	140	"		"	
P.W. Circulating Pump	2	27	1	19/064	102 ✓ 143	170	"		"	
General Service & Fire Pump	1	20	1	19/044	78 ✓ 92	110	"		"	
Bilge & Fire Pump	1	20	1	19/044	78 ✓ 92	110	"		"	
H.O. Transfer Pump	1	12.5	1	19/044	47 ✓ 92	160	"		"	
Deisel Oil Transfer Pump	1	12.5	1	19/044	47 ✓ 92	160	"		"	
Turning Gear	1	12	1	19/044	48 ✓ 92	90	"		"	
Purifiers	5	3.5	1	7/036	14.3 ✓ 24	100	V.I.R.		"	
Purifier Sludge Pump	1	1.0	1	3/036	4.3 ✓ 10	90	"		"	
Engine Room Vent Fan	2	4	1	7/036	15 ✓ 24	120	"		"	
Purifier Space Vent Fan	1	0.36	1	3/036	1.6 ✓ 10	180	"		"	
Oil Burning Plant Vent Pump	2	2	1	7/036	9 ✓ 24	70	"		"	
" " Blower Motor	1	2	1	7/044	10 ✓ 31	80	"		"	
H.O. Supply Pump	1	2	1	7/036	10 ✓ 24	170	"		"	
Deisel Generator F.W. Pump	1	4	1	7/036	16 ✓ 24	20	"		"	
Head Valve Cooling Pump	2	0.75	1	3/036	3.2 ✓ 10	70	"		"	
F.W. Generator Vacuum Pump	1	1.5	1	3/036	6.8 ✓ 10	50	"		"	
" " Blower Pump	1	1.5	1	3/036	6.8 ✓ 10	80	"		"	
" " Condensate Pump	1	1.5	1	3/036	6.8 ✓ 10	40	"		"	
Whirlers	1	58	1	37/093	215 ✓ 287	220	Butyl Rubber		P.C.P. - Brisbane	
Cargo Whirlers	{	10	25	1	19/083	97	161	60/280	"	"
		4	42	1	37/072	160	204	60	"	"
Washing Machine	1	25	1	19/083	97 ✓ 161	50	"		"	
Steering Gear	2	12	1	19/044	45 ✓ 72	390	"		"	
Refrig Compressor	3	17.5	1	19/064	67 ✓ 115	45	"		"	
" S.W. Pumps	2	3	1	7/036	12 ✓ 24	120	V.I.R.		"	
" Fans	4	0.88	1	7/036	4.5 ✓ 24	70/100	"		"	
Watch Vent Fan	9	1.4	1	7/036	5.3 ✓ 24	100/300	"		"	
Accommodation Vent Fans	{	2	5.5	1	7/044	22	31	20	"	"
		1	0.25	1	3/036	1.4 ✓ 10	120	"	"	
Tallow Pump	1	15	1	19/083	58 ✓ 161	60	Butyl Rubber		"	
Hydraulic Hatch Pumps	2	18	1	19/052	70 ✓ 88	20	"		"	

NOTE.—Use Rpt. 13 Continuation Sheet if the above space is insufficient

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.

P. PRO THE SUNDERLAND FORCE & ENGINEERING CO., LTD.

OR AND ON BEHALF OF
BARTRAM and SONS LTD.

R. M. O'Clune

G. Bartram Electrical Contractors.
DIRECTOR

Date *14-4-61*

COMPASSES

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

BARTRAM and SONS LTD.

G. Bartram

Builder's Signature.

Date *17-4-61*

DIRECTOR

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 and materials, opinions as to class, etc.) *This electrical equipment has been installed under special survey in accordance with the approved plans & the Society's Rules for Electrical Equipment. The installation has been tested under working conditions and found satisfactory. The materials and workmanship are good.*

In my opinion this electrical equipment is eligible to be accepted for classification

Total Capacity of Generators... *825* Kilowatts.

The amount of Fee ... £ *143* : *5* : 0 When applied for,
27 APR 1961 19

Travelling Expenses (if any) £ : : When received, 19

L. A. Hafford
Surveyor to Lloyd's Register of Shipping

Committee's Minute

FRIDAY 23 JUN 1961

Assigned

3m.5.60—Transfer. (MADE AND PRINTED IN ENGLAND)
(The Surveyors are requested not to write on or below the space for Committee Minute.)

**: 1961*
8.5.61



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