

REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

-4 MAR 1936

Date of writing Report 27 Feb 1936 When handed in at Local Office 2. 3. 1936 Port of Glasgow.
No. in Survey held at Glydebank Date, First Survey 24 Jan Last Survey 24 Jan 1936
Reg. Book. 37545 on the M.V. 'COMANCHEE' (Number of Visits 8)
Built at Glydebank. By whom built J. Brown & Co. Ltd Yard No. 544 When built 1936
Owners Anglo American Oil Co. Ltd. Port belonging to Glasgow.
Electric Light Installation fitted by J. Brown & Co. Ltd Contract No. 544 When fitted 1936
Is the Vessel fitted for carrying Petroleum in bulk Yes

System of Distribution Two wire

Pressure of supply for Lighting 110 volts, Heating 110 volts, Power 110 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 Yes, 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 Main Engine Room, is the ventilation

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 In Engine Room near generator.

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 micanite or other

non-hygroscopic insulating material, and the slab similarly insulated from its framework Yes, is the non-hygroscopic insulating material of an approved

type Yes, 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

Triple pole Circuit Breaker (1 Pole equalizer) fitted with 1/2 1/2 kips for each generator. D.P. switch open for each outgoing

circuits. 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 — Instruments on main switchboard 2 ammeters 2

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

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

Earth Lamp 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* Joint Boxes, Section and Distribution Boards, is the construction, protection, insulation, material, and position of these as per rule *Yes*

Cables: Single, twin, concentric, or multicore *Single & twin* 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 *—* Fall of Pressure, state maximum between bus bars and any point of the installation under maximum load *4.7 Volts* Cable Sockets, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets *Yes*

Paper Insulated and Varnished Cambric Insulated Cables. 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 *—*, or waterproof insulating tape *Yes* Cable Runs, are the cables fixed as far as possible in accessible positions 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 *Main cables V.C. L.C.A.B. clipped to steel plate under fore & aft gangway, protected by steel rods where necessary. Machinery spaces V.C. n. Main & L.C.A.B. Access & Main L.C.B.*

If cables are run in wood casings, are the casings and caps secured by screws *—*, are the cap screws of brass *—*, are the cables run in separate grooves *—*. 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

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

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 *Lead*

Earthing Connections, state what earthing connections are fitted and their respective sectional areas. *Heating & some wiring of cables efficiently bonded and earthed by means of clips & bonding glands.* are their connections made as per Rule *—*

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 *—*

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 *—*

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 *—*

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 in Pump Room protected by special gastight fittings, wholly outside space.* how are the cables led *—*

where are the controlling switches situated *in midship accommodation.* 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 *—*

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

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

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 - as needed*, 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 *—*, if not of this type, state distance of the combustible material horizontally or vertically above the motors *—* and *—*

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

PARTICULARS OF GENERATING PLANT.									
DESCRIPTION OF GENERATOR.	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE.		
		Kilowatts.	Volts.	Ampères.	Revs. per Min.		Fuel Used.	Flash Point of Fuel.	
MAIN ...	1	30	110	272	400	Oil Engine	Distill Oil	Above 150°F	
AUXILIARY ...	1	30	110	272	400	Steam Engine			
EMERGENCY ...									
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	25	37	0.093	272	309 ✓	44	Varn. Cambric	L. C. A. B.
EQUALISER CONNECTIONS ...	1	15	37	0.072	—	222 ✓	22	"	"
AUXILIARY GENERATOR ...	1	25	37	0.093	272	309 ✓	44	"	"
EMERGENCY GENERATOR									
ROTARY TRANSFORMER } MOTOR GENERATOR									
ENGINE ROOM ...	2	1	0.045	7	0.052	25 51 ✓	120	"	"
BOILER ROOM ...									
AUXILIARY SWITCHBOARDS ...									
ACCOMMODATION ENGINE DR.	1	0.225	7	0.064	23	68 ✓	180	"	"
Mid Lighting Circuit S.I.	1	0.10	19	0.083	54.7	172 ✓	540	"	"
Mid Towns Circuit S.I.	1	0.225	7	0.064	30	68 ✓	540	"	"
Navigation Instrument Rep. Dr.	1	0.225	7	0.064	15	68 ✓	600	"	"
Gen. Sec. Aft. Dr.	1	0.225	7	0.064	18	68 ✓	150	"	"
WIRELESS ...	1	0.225	7	0.064	13.6	68 ✓	600	"	"
SEARCHLIGHT ...	1	0.04	19	0.052	27.2	94 ✓	600	"	"
MASTHEAD LIGHT ...	1	0.002	3	0.029	36	7.8 ✓	300	Macoute	"
SIDE LIGHTS ...	1	0.002	3	0.029	36	7.8 ✓	160	"	L. C. B.
COMPASS LIGHTS ...	1	0.002	3	0.029	22	7.8 ✓	120	"	"
POOP LIGHTS ...									
CARGO LIGHTS ...									
ARC LAMPS ...									
HEATERS (WATER HEATERS) ...	1	0.0045	7	0.029	7	18.2 ✓	90	"	"
	1	0.0045	7	0.029	9	18.2 ✓	60	"	"

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 PUMPS ...	1	1	15	37	0.072	142/224	222 ✓	240	V. C.	L. C. A. B.
GENERAL SERVICE PUMP										
EMERGENCY BILGE PUMP ...										
SHOULDER CONNECTION SANITARY PUMP	—	1	15	37	0.072	—	222 ✓	160	"	"
CIRC. SEA WATER PUMPS ...										
CIRC. FRESH WATER PUMPS ...	1	1	15	37	0.072	142/224	222 ✓	270	"	"
AIR COMPRESSOR ...										
FRESH WATER PUMP ...										
ENGINE TURNING GEAR ...	1		0.06	19	0.064	122	122 ✓	180	"	"
ENGINE REVERSING GEAR ...										
LUBRICATING OIL PUMPS ...	1	1	0.04	19	0.052	66	94 ✓	300	"	"
OIL FUEL TRANSFER PUMP ...										
WIRELESS E.R. CRANE ...	1	1	0.045	7	0.052	27	51 ✓	60	"	"
WINCHES, FORWARD										
REFRIG. COMPRESSOR ...	1	1	0.007	7	0.036	27	25 ✓	160	"	"
WINCHES, AFT										
REAR. CIRC. PUMP	1	1	0.003	3	0.036	7.6	12 ✓	60	Macoute	"
STEERING GEAR—										
(a) MOTOR GENERATOR ...										
(b) MAIN MOTOR ...	2	1	15	37	0.072	236	222 ✓	300	V.C.	"
WORKSHOP MOTORS ...	4	1	0.007	7	0.036	19.5	25 ✓	60	"	"
VENTILATING FANS ...										
MISCELLANEOUS PUMPS (JUNCTION BOX 'J2')	—	1	10	19	0.083	110	172 ✓	120	"	L. C. A. B.
WORKSHOP & CRANE MOTORS (JUNCTION BOX 'J1')	—	1	0.04	19	0.052	88	94 ✓	90	"	"
OIL PURIFIERS ...	2	1	0.007	7	0.036	22	25 ✓	180	"	"
FUEL VALVE COOLING PUMPS	2	1	0.007	7	0.036	19	25 ✓	120	"	"
CONDENSATE PUMPS ...	1	1	0.007	7	0.036	27	25 ✓	120	"	"

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

John Brown & Company, Limited

W. Beck
Cludebank Secretary

Electrical Engineers.

Date 29th Feb 1936

COMPASSES.

Distance between electric generators or motors and standard compass 190 feet

Distance between electric generators or motors and steering compass 190 feet

The nearest cables to the compasses are as follows:—

A cable carrying 27 Amperes 10 feet from standard compass 10 feet from steering compass.

A cable carrying 15 Amperes 10 feet from standard compass 10 feet from steering compass.

A cable carrying 22 Amperes 64 mbs feet from standard compass 64 mbs 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 1/2 degrees on any course in the case of the standard compass, and 1/2 degrees on any course in the case of the steering compass.

John Brown & Company, Limited

W. Beck
Cludebank Secretary

Builder's Signature.

Date 29th Feb 1936

Is this installation a duplicate of a previous case 60 If so, state name of vessel —

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

The electrical equipment of the

vessel has been fitted on board under special survey, tested under full working conditions and found satisfactory. The materials and workmanship were found good and sound.

2/3/36.

*Noted
L.H.
4/3/36.*

Total Capacity of Generators 60 Kilowatts.

The amount of Fee ... £ 28 : 10 :

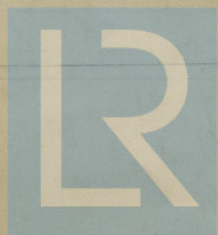
When applied for,
2 - MAR 1936
When received,
4 - 3 19 36

Travelling Expenses (if any) £ :

A. Stammers
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 3 - MAR 1936

Assigned SEE ACCOMPANYING MACHINERY REPORT.



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