

REPORT ON ELECTRICAL EQUIPMENT

[OTHER THAN FOR THE PROPULSION OF THE VESSEL]

25 AUG 1949

Date of writing Report 15-7-1949 When handed in at Local Office 15-7-1949 Port of NEWCASTLE, N.S.W.

Received at London Office

No. in Reg. Book 90949 Survey held at Newcastle, N.S.W. Date: First Survey 12-5-48 Last Survey 29-6-1949 (Number of Visits 15)

on the Steel Screw Steamer "DENMAN"

Tons { Gross 2265 Net 1100

Built at Newcastle, N.S.W. By whom built N.S.W. Govt. Engineering & Shipbuilding Undertaking Yard No. 27 When built 1948-49

Owners Commonwealth of Australia Port belonging to Newcastle, N.S.W.

Electrical Installation fitted by N.S.W. Govt. Engineering & Shipbuilding Undertaking Contract No. When fitted 1948-49

Is vessel fitted for carrying Petroleum in bulk No Is vessel equipped with D.F. No E.S.D. Yes Gy.C. No Sub.Sig Yes

Have plans been submitted and approved Yes System of Distribution Two wire Voltage of supply for Lighting 220

Heating 220 Power 220 Direct or Alternating Current, Lighting D.C. Power D.C. If Alternating Current, state frequency Prime Movers

has the governing been tested and found efficient when the whole load is suddenly thrown on and off Yes Are turbine emergency governors fitted with a

trip switch as per Rule Generators, are they compound wound Yes, are they level compounded under working conditions Yes

if not compound wound, state distance between generators and from switchboard Where more than one generator is fitted, are they

arranged to run in parallel Yes, are shunt field regulators provided Yes Is the compound winding connected to the negative or positive pole

Negative Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Have certificates of

test for machines under 100 kw. been supplied and the results found as per rule Are the lubricating arrangements and the construction

of the generators as per rule Yes Position of Generators Starboard side Engine Room

is the ventilation in way of generators satisfactory Yes, are they clear of inflammable material Yes, if situated

near unprotected combustible material, state distance from same horizontally and vertically, are the generators protected from mechanical

injury and damage from water, steam and oil Yes, are the bedplates and frames earthed Yes and the prime movers and generators in metallic

contact Yes Switchboards, where are main switchboards placed Engine Room starboard aft flat.

are they in accessible positions, free from inflammable gases and acid fumes Yes, are they protected from mechanical injury and damage from water, steam

and oil Yes, if situated near unprotected combustible material, state distance from same horizontally and vertically, what insulation

material is used for the panels Miscolite, if of synthetic 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 frame effectually earthed Yes

Is the construction as per Rule Yes, including accessibility of parts Yes, absence of fuses on the back of the board Yes, individual fuses

to pilot and earth lamps, voltmeters, etc. Yes locking of screws and nuts Yes, labelling of apparatus and fuses Yes, fuses on the "dead"

side of switches Yes Description of Main Switchgear for each generator and arrangements of equaliser switches 300 amp triple pole air

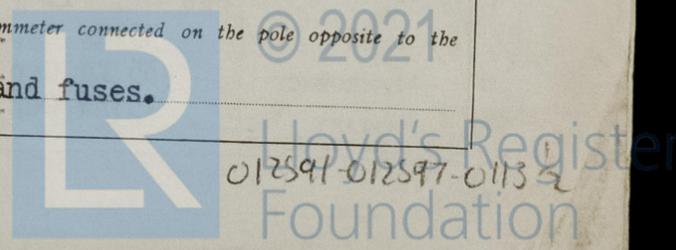
circuit breaker fitted with time lag overload protection on each pole-No voltage and reverse current release.

and for each outgoing circuit 150, 100, 60 & 30 Amp D.P. quick break knife switches and D.P. fuses.

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

ammeters Three voltmeters synchronising devices. For compound machines in parallel is the ammeter connected on the pole opposite to the

equaliser connection Yes Earth Testing, state means provided Earth lamps, switches and fuses.



Switches, Circuit Breakers and Fuses, are they as per Rule **Yes**, are the fuses an approved type **Yes "Artic"**, are all fuses labelled as per Rule **Yes**, are the reversed current protection devices connected on the pole opposite to the equaliser connection **Yes**, have they been tested under working conditions **Yes**. Joint Boxes, Section Boards and Distribution Boards, is the construction and position as per Rule **Yes**. Cables, are they insulated and protected as per the appropriate Tables of the Rules **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 **5.25**, are the ends of all cables having a sectional area of 0.04 square inch and above provided with soldering sockets **Yes**. Are paper insulated and varnished cambric insulated cables sealed at the exposed ends with insulating compound **-** or waterproof insulating tape **-**. 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 cables laid under machines or floorplates **Yes**, if so, are they adequately protected **Yes**. Are cables in machinery spaces, galleys, laundries, etc., lead covered **Yes** or run in conduit **No**. State how the cables are supported and protected **Secured by clips to perforated trays, with sheet metal covers where exposed to possible damage.**

Are all lead sheaths, armouring and conduits effectually bonded and earthed **Yes**. Refrigerated chambers, are the cables and fittings as per Rule **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** and with what material **Lead**. Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule **Yes**. Emergency Supply, state position **24 volt batteries fitted on boat deck** and method of control **Operated by relay when ships supply fails**. Navigation Lamps, are they separately wired **Yes** controlled by separate double pole switches **Yes** and fuses **Yes**. Are the switches and fuses in a position accessible only to the officers on watch **Yes**, is an automatic indicator fitted **Aural and visual**. Secondary Batteries, are they constructed and fitted as per Rule **Yes**, are they adequately ventilated **Yes**. Fittings, are all fittings on weather decks, in stokeholds and engine rooms and wherever exposed to drip or condensed moisture, weatherproof **Yes**. Are fittings installed where readily combustible materials or inflammable or explosive dust or gases are likely to be present **No**, if so, how are they protected **-**.

and where are the controlling switches fitted **-** are all fittings suitably ventilated **Yes**. are all fittings and accessories constructed and installed as per Rule **Yes**. Searchlight Lamps, No. of **-**, whether fixed or portable **-**, are their fittings as per Rule **-**. Heating and Cooking, is the general construction as per Rule **Yes**. are the frames effectually earthen **Yes**, are heaters in the accommodation of the convection type **Yes**. Motors, are all motors constructed and installed as per Rule **Yes** and placed in well-ventilated compartments in which inflammable gases cannot accumulate and free from damage from water, steam and oil **Yes**, if situated near unprotected combustible material, state minimum distance from same horizontally **-** and vertically **-**. 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 services been supplied and the results found as per Rule **-**. Control Gear and Resistances, are they constructed and fitted as per Rule **Yes**. Lightning Conductors, where required are they fitted as per Rule **-**. Ships carrying Oil having a Flash Point less than 150° F. Have all the special requirements of the Rules for such ships been complied with **Yes**, are all fuses of the cartridge type **No**. are they of an approved type **Yes-Artic**. If portable lamps for use in dangerous spaces are supplied, are they of a self-contained battery-fed flameproof type **-**. Spare Gear, if the vessel is for open sea service have spares been provided as per Rule **Yes**, are they suitably stored in dry situations **Yes**. Insulation Tests, has the insulation resistance of all circuits and apparatus been megger tested and found satisfactory **Yes**.

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR	No. of	RATED AT				DRIVEN BY	WHERE DRIVEN BY AN INTERNAL COMBUSTION ENGINE	
		Kilowatts	Volts	Amperes	Revs. per Min.		Fuel Used	Flash Point of Fuel
MAIN	Two	35	225	156	550	Recip. Steam Engine	-	-
	One	15	225	68	1000	3 Cyl. Diesel Engine	Dieseline	125° F.
		35 KW Gen. No. 1 Serial No. 2/42784/1 Engine No. R2/42783/1						
EMERGENCY		35 KW Gen. No. 2 Serial No. E2/45673/5 Engine No. R2/45672/5						
ROTARY TRANSFORMER		15 KW Gen. Serial No. E2/54680/9 Engine No. 4031						

GENERATOR CABLES.

DESCRIPTION	KILOWATTS	CONDUCTORS No. in Parallel Per Pole	Sectional Area or No. and Dia. of Strands sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (Lead plus return feet)	INSULATED WITH	HOW PROTECTED
				In the Circuit	Rule			
MAIN GENERATOR No. 1	35	One	37/083	156	184	84	Rubber	Lead covered.
" EQUALISER			37/083		184	42	"	" "
Main Generator No. 2	35	One	37/083	156	184	84	"	" "
" " Equaliser			37/083		184	42	"	" "
Auxiliary Generator	15	One	19/064	68	83	60	"	" "
Aux. Generator Equaliser			37/083		184	30	"	" "
EMERGENCY GENERATOR								
ROTARY TRANSFORMER MOTOR								
GENERATOR								

MAIN DISTRIBUTION CABLES.

AUX. SWITCHBOARDS AND SECTION BOARDS		CONDUCTORS No. in Parallel Per Pole	Sectional Area or No. and Dia. of Strands sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (Lead plus return feet)	INSULATED WITH	HOW PROTECTED
DESCRIPTION	KILOWATTS			In the Circuit	Rule			
Circuit B		One	7/036	11.31	24	320	Rubber	Lead Covered.
" D		"	19/064	55.15	83	180	"	" "
" E		"	19/083	89.91	118	188	"	" "
" F		"	19/064	72.00	83	280	"	" "
" G		"	19/083	93.80	118	52	"	" "
" H		"	7/064	34.99	46	200	"	" "
" J		"	19/064	71.12	83	200	"	" "

LIGHTING AND HEATING, ETC., CABLES

DESCRIPTION	KILOWATTS	CONDUCTORS No. in Parallel Per Pole	Sectional Area or No. and Dia. of Strands sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (Lead plus return feet)	INSULATED WITH	HOW PROTECTED
				In the Circuit	Rule			
WIRELESS Circuit C		One	7/044	11.00	31.0	360	Rubber	Lead Covered.
NAVIGATION LIGHTS Circuit A		"	7/036	1.2	24.0	324	"	" "
LIGHTING AND HEATING Circuit DS1D1		"	7/036	5.1	24.0	446	"	" "
" Circuit DS1D2		"	7/036	12.4	24.0	328	"	" "
" DS1D3		"	7/036	12.16	24.0	88	"	" "
" DS1D4		"	7/036	9.86	24.0	210	"	" "
" DS1D5		"	7/036	15.63	24.0	93	"	" "
" ES1D1		"	7/036	15.04	24.0	180	"	" "
" ES1D2		"	7/036	12.08	24.0	266	"	" "
" ES1D3		"	7/044	24.91	31.0	76	"	" "
" ES1D4		"	7/036	18.21	24.0	137	"	" "
" ES1D5		"	7/036	19.67	24.0	92	"	" "

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED	No.	B.H.P.	CONDUCTORS No. in Parallel Per Pole	Sectional Area or No. and Dia. of Strands sq. ins. or sq. mm.	MAXIMUM CURRENT IN AMPERES		APPROX. LENGTH (Lead plus return feet)	INSULATED WITH	HOW PROTECTED
					In the Circuit	Rule			
Sanitary Pump	1	1.1	One	7/036	12.5	24.0	84	Rubber	Lead Covered.
Fresh Water Pump	1	2.0	One	3/036	9.0	10	34	"	" "
Brine Pump Motor No. 1	1	1.5	One	3/036	7.0	10	24	"	" "
Brine Pump Motor No. 2	1	1.5	One	3/036	7.0	10	24	"	" "
Engineers Drill	1	0.5	One	3/036	2.5	10	140	"	" "
Domestic Refrig. Motor	1	1.0	One	3/036	5.0	10	66	"	" "
" " "	1	0.5	One	3/036	2.8	10	66	"	" "
Brine Storage Pump	1	0.5	One	3/036	2.8	10	36	"	" "
Refrig. Compr. Motor	1	3.0	One	7/036	12.5	24	48	"	" "
12" Vent. Port Aft.	1	1.1KW	One	3/036	5.2	10	72	"	" "
12" Vent. Port For'd.	1	1.1KW	One	3/036	5.2	10	72	"	" "
12" Vent. Stbd. Aft.	1	1.1KW	One	3/036	5.2	10	52	"	" "
12" Vent. Stbd. For'd.	1	1.1KW	One	3/036	5.2	10	52	"	" "
24" Axial Flow Fan St. E. R.	1	1.0KW	One	3/036	4.4	10	261	"	" "
24" " " "Port E. R.	1	1.0KW	One	3/036	4.4	10	267	"	" "
24" " " "St. B. R.	1	1.0KW	One	3/036	7.0	10	368	"	" "
Refrig. Cargo Fan Port Upper	1	1.0	One	3/036	5.0	10	70	"	" "
" " " "Lower	1	1.0	One	3/036	5.0	10	54	"	" "
" " " "Stb. Upper	1	1.0	One	3/036	5.0	10	70	"	" "
" " " "Port Lower	1	1.0	One	3/036	5.0	10	66	"	" "
Sea Water Cond. Pump No. 1	1	0.5	One	3/036	2.8	10	24	"	" "
" " " "No. 2	1	0.5	One	3/036	2.8	10	24	"	" "
Bench Grinder	1		One	3/036	2.5	10	132	"	" "
Galley Blower	1	0.5	One	3/036	2.4	10	90	"	" "

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.

Electrical Engineers. Date

COMPASSES.

Minimum distance between electric generators or motors and standard compass Clear View Screen 7 feet.
 Minimum distance between electric generators or motors and steering compass " " " 4.5 feet.

The nearest cables to the compasses are as follows:—

A cable carrying 0.09 Amperes Led into ~~feet from~~ standard compass Led into ~~feet from~~ steering compass.
 A cable carrying 15 Amperes 6.5 feet from standard compass 5.5 feet from steering compass.
 A cable carrying 11.31 Amperes 6.5 feet from standard compass 5.5 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 any course in the case of the standard compass, and Nil degrees on any course in the case of the steering compass.

STATE DOCKYARD.
 N.S.W. Govt. Engineering and Shipbuilding Undertaking. Wandling Builder's Signature. Date 15 July 1949

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

General Remarks (State quality of workmanship, whether insulation, tests, etc., have been made, opinions as to class, etc.)

The Electrical Installation of this vessel has been constructed and fitted on board in accordance with the Rules and approved plans. The material and workmanship are good. Insulation resistance tests and the trials required by the Rules have been satisfactorily carried out and in my opinion the Installation is eligible for classification with the Society.

Noted sent 18/10/49

Total Capacity of Generators 85 Kilowatts.

The amount of Fee ... £ 85:18 : When applied for, 7/7/1949
 Travelling Expenses (if any) £ : When received, 25/7/1949

W. B. B. Dillon
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI, 28 OCT 1949

Assigned Su F.F. mchly rpl

100-8/41-1, B.C.S.—TRANSFER. (PRINTED IN AUSTRALIA) (The Surveyors are requested not to write on or below the space for Committee's Minute.)

