

REPORT ON ELECTRIC LIGHTING INSTALLATION. No. 41800

Port of GLASGOW Date of First Survey 28. 12. 21 Date of Last Survey 10. 3. 22 No. of Visits 9.
 No. in on the ~~Steel~~ M.V. "HAURAKI" Port belonging to LONDON.
 Reg. Book 37731. Built at DUMBARTON By whom M^{RS} W. DENNY. BRO^S LTD When built 1922.
 Owners THE UNION S.S. CO. OF NEW ZEALAND. Owners' Address _____
 Yard No. 1039. Electric Light Installation fitted by M^{RS} W. DENNY BRO^S LTD When fitted 1922.

DESCRIPTION OF DYNAMO, ENGINE, ETC.

TOTAL K.W. = 441

3 DIESEL DRIVEN GENERATORS 220 VOLTS D.C. 137 KW

EACH
 Capacity of Dynamo 3-662 1-136. Amperes at 220 Volts, whether continuous or alternating current D.C.
 Where is Dynamo fixed 3 BOTTOM PLATFORM ENGINE RM 1 BOAT D^M Whether single or double wire system is used DOUBLE
 Position of Main Switch Board D° D° D° STB° having switches to groups 492 of lights, &c., as below
 Positions of auxiliary switch boards and numbers of switches on each _____

If fuses are fitted on main switch board to the cables of main circuit YES and on each auxiliary switch board to the cables of auxiliary circuits YES. and at each position where a cable is branched or reduced in size YES and to each lamp circuit YES
 If vessel is wired on the double wire system are fuses fitted to both flow and return wires or cables of all circuits including lamp circuits YES
 Are the fuses of non-oxidizable metal YES and constructed to fuse at an excess of 50 per cent over the normal current
 Are all fuses fitted in easily accessible positions YES. Are the fuses of standard dimensions YES If wire fuses are used are permanent instructions fitted on or near each switch board giving particulars of proper size of fuse for each circuit YES
 Are all switches and fuses constructed of incombustible materials and fitted on incombustible bases YES.

Total number of lights provided for _____ arranged in the following groups :—
 A _____ lights each of _____ candle power requiring a total current of _____ Amperes
 B _____ lights each of _____ candle power requiring a total current of _____ Amperes
 C SEE lights each of ATTACHED LIST candle power requiring a total current of _____ Amperes
 D _____ lights each of _____ candle power requiring a total current of _____ Amperes
 E _____ lights each of _____ candle power requiring a total current of _____ Amperes
 Mast head light with _____ lamps each of _____ candle power requiring a total current of _____ Amperes
 Side light with _____ lamps each of _____ candle power requiring a total current of _____ Amperes
 Cargo lights of _____ candle power, whether incandescent or arc lights

If arc lights, what protection is provided against fire, sparks, &c. NONE FITTED.

Where are the switches controlling the masthead and side lights placed CHART HOUSE.

DESCRIPTION OF CABLES.

3 CABLES
 Main cable carrying 660 Amperes, comprised of ENGR 261 wires, each .105 S.W.G. diameter, 1 square inches total sectional area
 Branch cables carrying 200 Amperes, comprised of 37 wires, each .103 S.W.G. diameter, .3 square inches total sectional area
 Branch cables carrying 33.5 Amperes, comprised of 7 wires, each .064 S.W.G. diameter, .02 square inches total sectional area
 Leads to lamps carrying 3 Amperes, comprised of 3 wires, each .036 S.W.G. diameter, .003 square inches total sectional area
 Cargo light cables carrying 3 Amperes, comprised of 3 wires, each .036 S.W.G. diameter, .003 square inches total sectional area

DESCRIPTION OF INSULATION, PROTECTION, ETC.

LEAD COVERED IN ACCOMMODATION
LEAD COVERED & WIRE ARMoured IN MACHINERY SPACES

Joints in cables, how made, insulated, and protected NO JOINTS

Are all the joints of cables thoroughly soldered, and the flux used not containing acids or other corrosive substances _____ Are all joints in accessible positions, none being made in bunkers, cargo spaces, or spaces which may at any time be used for carrying cargo, stores, or baggage _____

Are there any joints in or branches from the cable leading from dynamo to main switch board _____

How are the cables led through the ship, and how protected IN SHEET PLATING COVERED WITH SHEET IRON.



DESCRIPTION OF INSULATION, PROTECTION, ETC.—continued.

Are they in places always accessible YES

What special protection has been provided for the cables in open alleyways or where exposed to weather or moisture LEAD COVERED

PROTECTED BY SHEET IRON

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat TROPICAL PATTERN FITTED

What special protection has been provided for the cables near boiler casings

What special protection has been provided for the cables in engine room WIRE ARMoured

How are cables carried through beams BUSHED WITH LEAD through bulkheads, &c. WATERTIGHT GLANDS

How are cables carried through decks WATER TIGHT IRON DECK TUBES

Are any cables run through coal bunkers or cargo spaces YES or spaces which may be used for carrying cargo, stores, or baggage YES.

If so, how are they protected SHEET IRON

Are any lamps fitted in coal bunkers or spaces which may at times be used for cargo, coals, or baggage YES.

If so, how are the lamp fittings and cable terminals specially protected CAST IRON FITTINGS

Where are the main switches and fuses for these lights fitted IN ALLEYWAYS

If in the spaces, how are they specially protected

Are any switches or fuses fitted in bunkers

Cargo light cables, whether portable or permanently fixed PORTABLE How fixed

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel

How are the returns from the lamps connected to the hull

Are all the joints with the hull in accessible positions

Is the installation supplied with a voltmeter YES and with an amperemeter YES, fixed MAIN BOARD.

VESSELS BUILT FOR CARRYING PETROLEUM.

In vessels built for carrying petroleum, are all switches and fuses fitted in positions not liable to the accumulation of petroleum vapour or gas

Are any switches, fuses, or joints of cables fitted in the pump room or companion

How are the lamps specially protected in places liable to the accumulation of vapour or gas

The copper used is guaranteed to have a conductivity of not less than that of the Engineering Standards Committee's standard, and the wires are protected by tinning from the sulphur compounds present in the insulating material.

Insulation of cables is guaranteed to have a resistance of not less than 600 megohms per statute mile at 60° Fahrenheit after 24 hours' immersion in water, the test being made after one minute's electrification at not less than 500 volts and while the cable is still immersed.

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

FOR WILLIAM DENNY & BROTHERS LIMITED.

Electrical Engineers

Date 29/3/22

COMPASSES.

Distance between dynamo or electric motors and standard compass 35 FT

Distance between dynamo or electric motors and steering compass 30 FT

The nearest cables to the compasses are as follows:— ALL COMPASSES FITTED WITH ELECTRIC LIGHT.

A cable carrying	Amperes	IN	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

The maximum deviation due to electric currents, etc., 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.

William Denny Director
Builder's Signature. Date

GENERAL REMARKS.

This installation has been fitted on board under special Survey. Tested under full working conditions and found satisfactory

It is submitted that this vessel is eligible for

FREE £42-10-6. 21/3/22
18/3/22
J.P. Rankin
Surveyor to Lloyd's Register of Shipping.

Committee's Minute GLASGOW 11 APR 1922
Elec. Light.



THE SURVEYORS ARE REQUESTED NOT TO WRITE ACROSS THIS MARGIN.

MC. 10-4-22
2m. 11.10—Transfer.

M.V. "HAURAKI"

GRAND SUMMARY OF LIGHTS FANS RADIATORS AND MOTORS.

CIRCUIT.	POSITION	LIGHTS.			FANS		RADIATORS.			MOTORS.			
		BOAT	SHELTER	UPPER	ENG. RM.	BOAT	SHELTER	BOAT	SHELTER	UPPER	SHELTER	UPPER	ENG. RM.
A	CARGO CLUSTERS. 1/2 WATT LANTERNS		82.										
B.	HOT. PRESS + BOILER.												
C	NAVIGATION	34	2			3							
D.	WIRELESS TELEGRAPH.												
E	ENGINE ROOM.		10		163								
FI.	CREWS QRS + HOLDS	3	45	61.									
F.	ENGINEERS + OFFICERS ACCOMM.	11	111										
G	SPARE												
H.	D°												
I	PISTON COOLING PUMP												1
J	SECTION BOX IN ENGINE RM. PORT.												7.
K	BALLAST PUMP												1
L	SECTION BOX IN ENGINE RM. STBD												5
M	RADIATORS						4	44	1.				
N	N°1. WINCH										1		
O	EMERGENCY BILGE PUMP.												1
P	SECTION BOX IN ENGINE RM. AFT.										1		1
Q	D° D° - D° STB°												4
R	WINCHES N° 4+5										2		
S	D° N° 2+3										2		
T	WINDLASS										1		
U	WINCHES N° 6+7.										2		
V	D° N° 10+11										2.		
W	D° N° 8+9										2		
X	SPARE												
Y	AIR COMPRESSOR												1.
Z	STEERING GEAR												1

GRAND TOTAL. 492. LIGHTS 25 FANS 49 RADIATORS 4 35 MOTORS

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M.V. HAURAKI — YARD NO 1039

PARTICULARS OF MOTORS, GENERATORS ETC.

	K.W.	AMPS	AREA	CABLE SIZE	
MAIN GENERATOR NO 1	137	660	1"	2 1/2" / .103	2-in parallel each 61/.103 ✓
" " " " 2	137	660	1"	4" / .103	" 61/.103 ✓
" " " " 3	137	660	1"	4" / .103	" 61/.103 ✓
EMERGENCY GEN ^{OR}	30	136	3"	3 7/8" / .103	✓

TOTAL K.W = 441

FEEDER CABLE OF EMERGENCY SWITCHBOARD? 3 7/8" / .103.

	N ^o OFF.	HP.	AMPS.	AREA	CABLE SIZE	
STEERING GEAR MOTOR.	1	25	85	.1019"	1 9/16" .083	✓
BALLAST PUMP MOTOR.	1	35	119	.2"	3 7/8" .083	✓
LUBRICATING OIL PUMP MOTOR.	2	2 @ 11	37	.0222"	7/16" .064	✓
CYLINDER COOLING PUMP MOTOR	2	2 @ 28	95	.2"	3 7/8" .083	✓
PISTON COOLING PUMP MOTOR	2	1 @ 28	95	.2"	3 7/8" .083	✓
		1 @ 10	33.5	.0222"	7/16" .064	✓
BILGE PUMP MOTOR	2	1 @ 9	30.5	.0222"	7/16" .064	✓
		1 @ 15	51	.04"	1 9/16" .052	✓
ENGINE TURNING GEAR MOTOR.	2	2 @ 12	40.5	.0222"	7/16" .064	✓
SANITARY PUMP MOTOR.	1	10	33.5	.0222"	7/16" .064	✓
FRESH WATER PUMP MOTOR.	1	3.5	11.9	.01"	7/16" .044	✓
COMPRESSOR MOTOR.	1	240	810	1"	12 7/16" .103	✓
OIL FUEL PUMP MOTOR.	1	3	10.2	.01"	7/16" .044	✓
REFRIGERATING M/C. MOTOR.	1	6	20	.01"	7/16" .044	✓
WINDLASS MOTOR.	1	60	200	.3"	3 7/8" .103	✓
DECK WINCH MOTORS.	11	11 @ 40	135	.3"	3 7/8" .103	✓
EMERGENCY PUMP MOTOR.	1	10.5	35.6	.04"	1 9/16" .052	✓
WORKSHOP MOTOR	1	5	17	.01"	7/16" .044	✓
ENGINE RM. VENT FAN MOTOR	1	6	20	.01"	7/16" .044	✓
WORKSHOP VENT FAN MOTOR	1	.5	1.7	.003"	3/16" .036	✓
LUBRICATING OIL PURIFIER	1	1	3.1	.003"	3/16" .036	✓
CLAYTON FIRE PUM	1	15	51	.04"	1 9/16" .052	✓



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