

Rpt. 13.

No. 628

# REPORT ON ELECTRICAL EQUIPMENT.

(OTHER THAN FOR THE PROPULSION OF THE VESSEL)

Received at London Office 11/5 APR 1952

Date of writing Report 19... When handed in at Local Office 19... Port of Kobe

No. in Reg. Book. Survey held at Nagasaki Date, First Survey 20th April, 1951 Last Survey 10th Nov. 1951 (No. of Visits 30)

on the Steel Twin Screw Motor Vessel ASO MARU Tons Gross 2,576.88 Net 4,312.51

Built at Nagasaki By whom built West Japan Heavy Industries Ltd. Yard No. 421 When built 1951. 11 mo

Owners Nippon Yusen K. K. Port belonging to Tokyo

Installation fitted by Nagasaki Shipyard & Engine Works When fitted 1951. 11 mo

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 system 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, if not compound wound state distance between generators and from switchboard

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

Negative pole Have machines over 100 kw. been inspected by the Surveyors during manufacture and testing Yes Have certificates of test for machines under 100 kw. been supplied Yes and the results found as per Rule Yes

Position of Generators Starboard aft foreward aft Port side in engine room

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 Foreward in engine room flat

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 Phenol resin, 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 A double pole circuit breaker with overload and reverse current trip for each generator. A single pole equalizer switch is interlocked with each circuit breaker. The reverse current protection is connected on the positive pole.

Volt meter and ammeter for each generator

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

A circuit breaker for circuit over 200 amperes and enclosed fuses and double pole switch for circuit under 200 amperes

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule Yes Instruments on main switchboard 9

ammeters 5 voltmeters synchronising devices For compound machines in parallel are the ammeters and reversed current protection devices connected on the pole opposite to the equaliser connection Yes Earth Testing, state means provided

Two 10 watts tungsten filament indicating lamps and megger tester

Switches, Circuit Breakers and Fuses, are they as per Rule Yes, are the fuses an Approved Type Yes

make of fuses Mitsubishi Electric Mfg Co. Ltd., are all fuses labelled Yes If circuit breakers are provided for the generators, at what overload do they operate 25 50 100 140 % overload, and at what current do the reversed current protective devices operate 150 amperes

Joint Boxes, Section Boards and Distribution Boards, is the construction as per Rule Yes

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 3.3 kalts, are the ends of all cables having a sectional area of 0.01 square inch and above provided with soldering sockets Yes 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

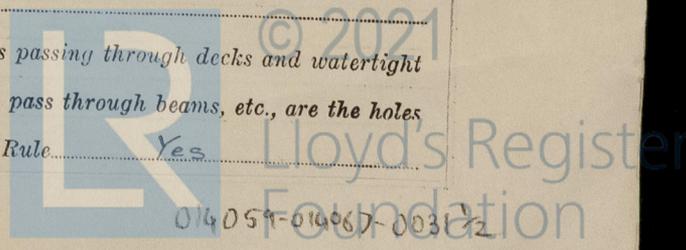
Are cables in machinery spaces, galleys, laundries, etc., lead covered Yes or run in conduit

of the "HR" type No State how the cables are supported or protected

Supported by steel hanger and protected by steel plate or steel pipe

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



Alternative Lighting, are the groups of lights in the engine and boiler rooms arranged as per Rule... Yes... Emergency Supply, state position Captain's and Chief Engineer's rooms, Engine room, Radio station, Dining saloon, Boat embarkation and passage and lavatories

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 and fitted as per Rule... Yes... are they adequately ventilated... Yes... state battery capacity in ampere hours... 2 Sets, each 200 Ampere hours

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

Searchlight Lamps, No. of 2, whether fixed or portable... fixed, are they of the carbon arc or of the filament type... 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... Yes... Have certificates of test for motors under 100 BHP intended for essential sea services been supplied and the results found as per Rule... Yes

Control Gear and Resistances, are they constructed and fitted as per Rule... Yes... Lightning Conductors, where required are they fitted as per Rule... Yes... 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... 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 the cables lead covered as per Rule... E.S.D., if fitted state maker... Nippon Denki Comp. Ltd., location of transmitter... engine room... No. 125-126 and receiver... engine room... No. 125-126

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.	
			Kilowatts per Generator.	Volts.	Ampères.	Revs. per Min.	TYPE.	MAKER.
MAIN	3	Nagasaki Works, Mitsubishi Electric Mfg. Co. Ltd.	230	230	1,000	375	Artesian injection 4 stroke Sulzer type oil engine	Yokohama Shipyard & Engine Works, East Japan Heavy Industries, Ltd.
Auxiliary	1	do	40	230	174	600	do	do
EMERGENCY	1	do	40	230	174	600	do	do
ROTARY TRANSFORMER	2	Nippon Electric Industry Co.	2 kVA	115	10.5	3,600	D-C Motor	Nippon Electric Industry Co.

GENERATOR CABLES.

DESCRIPTION.	KILOWATTS.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead 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	230	2	9/0.093	1,000	1,210	58	Varnished Cambric	Lead Sheathed and armoured
" " EQUALISER		1	9/0.093	500	605	29	do	do
Auxiliary	40	1	37/0.083	174	286	53	Varnished cambric	do
EMERGENCY GENERATOR	40	1	37/0.083	174	286	53	Varnished cambric	do
ROTARY TRANSFORMER: MOTOR	3.5 HP	1	7/0.064	10.5	22	19	Rubber	do
" " GENERATOR	2 kVA	1	7/0.064	17.5	33	19	do	do

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

DESCRIPTION.	No.	Sectional Area or No. and Dia. of Strands, Sq. ins. or sq. mm.	In the Circuit.	Rule.	APPROX. LENGTH (lead plus return feet).	INSULATION.	PROTECTIVE COVERING.
To NO. 2 AUXILIARY SWITCHBOARD	2	6/0.103	553	1426	108	Varnished-cambric	Lead Sheathed and armoured
To NO. 3 AUXILIARY SWITCHBOARD	2	6/0.093	405	2139	123	do	do
To PANEL CIRCUIT TO WORK SHOP MACHINES & GRINDER	1	19/0.052	345	64	62	Rubber	Lead Sheathed, armoured and braided
" " OIL BURNING UNIT, DONKEY BOILER FORCED FAN	1	19/0.052	258	64	31	do	do
" " L.O. PURIFIER, F.O. PURIFIER, F.O. CLARIFIER	1	37/0.093	117	214	65	do	do
" " F.O. SERVICE PUMP, L.O. SHIFT PUMP	1	19/0.083	51	118	65	do	do
" " REFRIGERATING MACHINES	1	6/0.103	416	522	52	Varnished-cambric	Lead Sheathed and armoured
" " GALLEY ETC.	1	19/0.064	69	71	87	Rubber	do
" " EXHAUST FAN	1	37/0.093	69	214	56	do	Lead Sheathed, armoured and braided

LIGHTING, HEATING, WIRELESS, NAVIGATION LIGHTS, ETC., CABLES.

DESCRIPTION.	CONDUCTORS.		MAXIMUM CURRENT IN AMPERES.		APPROX. LENGTH (lead 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.			
175 K.W. Toaster + 1.2 K.W. Heater	1	7/0.082	135	27	48	Rubber	Lead sheathed, armoured and braided
1.2 K.W. Heater + 600 W. Electric irons	1	7/0.044	164	22	59	do	Lead sheathed and armoured
Navigation light	1	7/0.064	0.89	33	90	do	Lead sheathed, armoured and braided
Signal lamp, Projector + Navigation Bridge light	1	7/0.064	12.4	33	90	do	do
Boat deck, Bridge deck light	1	7/0.083	80	200	42	do	do
Upper deck light	1	7/0.064	12	33	52	do	do
Cargo light	1	19/0.064	40	60	52	do	do
Engine room light	1	19/0.064	42.5	60	10	do	do
Cabin fan	1	7/0.064	10.5	33	55	do	do
Battery light	1	19/0.064	23.5	60	72	do	do
Ship log	1	7/0.044	0.8	4	16	do	Lead sheathed and braided
Echo sounder (D.C. 220V.)	1	7/0.064	2	7	14	do	Lead sheathed, armoured and braided
Fire detector (D.C. 220V.)	1	7/0.064	5	7	11	do	do
Engine telegraph	1	7/0.029	6	11	27	do	do
Anchor decking telegraph	1	7/0.029	2	11	26	do	do
Steering telegraph	1	7/0.064	2	7	22	do	do
Echo sounder (A.C. 110V.)	1	7/0.064	1	7	13	do	do
Gyro pilot (A.C. 110V.)	1	7/0.064	3	7	44	do	do
Fire detector	1	7/0.044	0.8	4	90	do	Lead sheathed and braided
Signal bell	1	7/0.044	0.8	4	23	do	do
Radax apparatus	1	7/0.064	10	33	93	do	Lead sheathed, armoured and braided
Radio apparatus	1	37/0.093	130	155	90	do	do
Gyro Compass	1	7/0.064	14	35	75	do	do
Gyro pilot (D.C. 220V.)	1	7/0.064	8	35	75	do	Lead sheathed and armoured

MOTOR CABLES.

ALL IMPORTANT MOTORS TO BE ENUMERATED.	No.	B.H.P.	CONDUCTORS.	MAXIMUM CURRENT IN AMPERES.	APPROX. LENGTH (lead 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.			
Engine room ventilating fan	2	85	1	19/0.064	36	83	131	Rubber	Lead sheathed and armoured
Engine turning gear	2	10	1	19/0.064	48.5	83	78	do	do
L.O. purifier	2	3.5	1	7/0.064	15.2	46	32	do	Lead sheathed, armoured and braided
F.O. purifier	2	7	1	19/0.064	28	83	18	do	Lead sheathed and armoured
F.O. Clarifier	1	31	1	19/0.064	31	83	20	do	do
F.O. service pump	2	4	1	7/0.064	17.1	46	22	do	Lead sheathed, armoured and braided
L.O. Shift pump	1	4	1	7/0.064	17.1	46	12	do	do
Fuel valve cooling water pump	2	2	1	7/0.036	8.9	24	38	do	do
Fresh water pump	1	4	1	7/0.064	17.0	46	20	do	do
Sanitary pump	2	4	1	7/0.064	16.5	46	32	do	do
F.O. transfer pump	2	15	1	19/0.083	58	118	60	do	do
Bilge pump	1	5.5	1	7/0.064	23	46	48	do	do
Fire & general service pump	1	60	1	9/0.103	231	334	36	do	Lead sheathed and armoured
Bilge & ballast pump	1	60	1	9/0.103	231	334	40	do	do
Piston cooling oil pump	2	115	1	9/0.093	43.5	605	52	Varnished-cambric	do
Jacket cooling sea water pump	2	65	1	9/0.103	24.5	334	30	Rubber	do
Steering gear	2	35	1	37/0.093	135	331	208	Varnished-cambric	do
Compressor for refrigerating machine	3	25	1	37/0.093	100	214	12	Rubber	Lead sheathed, armoured and braided
Brine pump for do.	3	5.5	1	7/0.064	23.2	46	8	do	do
Condenser cooling pump for do.	3	3.5	1	7/0.044	15.5	22	35	do	Lead sheathed and armoured
Exhaust fan	2	1.5	1	7/0.029	6.6	11	158	do	do
do	2	4	1	7/0.064	17.5	46	72	do	Lead sheathed, armoured and braided
do	1	5	1	7/0.064	21	46	87	do	do
Electric welding machine	1	13	1	19/0.083	51	118	50	do	do
Overhauling crane	2	67	1	19/0.083	36.4	118	46	do	do
Work shop machine	1	5	1	7/0.064	21.2	46	53	do	do
Grinder	1	2	1	7/0.036	9	24	51	do	do
Donkey boiler forced draft fan	1	5	1	7/0.064	21	46	40	do	do
Oil burning unit	1	1	1	7/0.036	4.8	24	50	do	do
Wine glass	1	90	1	9/0.093	340	605	9	do	do
5 <sup>T</sup> Cargo winch	6	57	1	37/0.083	223	286	30	Varnished-cambric	Lead sheathed and armoured
3 <sup>T</sup> Cargo winch	12	33	1	19/0.083	130	185	64	do	do
Mooring winch	1	57	1	37/0.083	223	286	67	do	do
Sounding machine	1	1.5	1	7/0.029	7.3	11	82	Rubber	do
Cooking range blower	2	1	1	7/0.029	4.6	11	31	do	do

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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.

*H. Jato*  
 NAGASAKI SHIPYARD & ENGINE WORKS,  
 WEST JAPAN HEAVY-INDUSTRIES, LTD. Electrical Contractors. Date 12th Nov. 1951

COMPASSES.

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

*H. Jato*  
 NAGASAKI SHIPYARD & ENGINE WORKS Builder's Signature. Date 12th Nov. 1951  
 WEST JAPAN HEAVY-INDUSTRIES, LTD.

Have the foregoing descriptions and schedules been verified and found correct. *Yes*

Is this installation a duplicate of a previous case. *✓* If so, state name of vessel.

Plans. Are approved plans forwarded herewith. *✓* If not, state date of approval. *27th Sep. 1951*

Certificates. Are certificates of test for motors engaged on essential sea services and generators forwarded herewith. *Yes*

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

*The Electric Installation of this vessel has been constructed under Special Survey in accordance with the Rules, Approved plans, and Secretary's letter.  
 Materials and workmanship are satisfactory.  
 The generators and motors etc. have been examined under full loading condition to Rules requirements and found satisfactory.*

*Noted ADM 1-5-52*

Total Capacity of Generators *730* Kilowatts.

The amount of Fee ... *£ 330.788* When applied for, \_\_\_\_\_ 19 \_\_\_\_\_  
 When received, \_\_\_\_\_ 19 \_\_\_\_\_  
 Travelling Expenses (if any) £ \_\_\_\_\_ : \_\_\_\_\_ : \_\_\_\_\_ 19 \_\_\_\_\_

*Aburiz Yamada*  
 Surveyor to Lloyd's Register of Shipping.

FRI. 6 JUN 1952

Committee's Minute \_\_\_\_\_  
 Assigned *See F.E. wely. rpt.*

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

