

Dates of Survey while building: During progress of work in shops - 1949. Nov. 30, Dec. 1, 5, 6, 12, 1950. Jan. 2, Apr. 24, 27.
 During erection on board vessel -
 Total No. of visits

Dates of Examination of principal parts - Cylinders 30.11.49. Covers 5.12.49. Pistons 6.2.49. Piston rods -

Connecting rods 12.12.49. Crank and Flywheel shafts 2.1.50. Intermediate shafts -

Crank shaft: Material O.H. Steel. Tensile strength 33.2 Tons/sq. inch.
 Elongation 32%. Identification Marks 6215 J.A.C. T.H.S. 18.8.49.

Flywheel shaft, Material - Identification Marks -

Identification marks on Air Receivers -

Is this machinery duplicate of a previous case - If so, state name of vessel Hawthorn Leslie, Engs. Nos. 4054 & 5. See Mch. Reports 13950/1.

GENERAL REMARKS (State quality of workmanship, opinions as to class, &c.) This engine has been constructed under special survey of tested materials and in accordance with the Secretary's letters and Rule requirements. The materials and workmanship are good. The engine was found satisfactory when tested at the Builders' Works under the following conditions of loading, and coupled direct to its electric generator: -
 4 hours at 100% Load.
 1 hour at 110% Load.

This diesel generator set is, in my opinion, suitable to be installed in a vessel classed with the Society for the purpose intended.

Attached herewith copies of the following certificates:
 Air Receiver C.10894, Crankshaft F.6268, Generator Test Cert. 41349, Serck Radiator C.8975 and Hamworthy Pump D.3598.

The amount of Fee ... £ 4 : 0 : 0. When applied for 16/5/1950 (R.M.)
 Travelling Expenses (if any) £ 1 : 5 : 6. When received 19

G.H. Kersey
 Surveyor to Lloyd's Register of Shipping.

Committee's Minute FRI. 13 APR 1951
 Assigned See F.E. Kersey rpt.

S.I.S.-T. (MADE AND PRINTED IN ENGLAND) (The Surveyors are requested not to write on or below the Rules for Committee Minutes.)

Rpt. 13. No. 19344
REPORT ON ELECTRICAL EQUIPMENT.
 (OTHER THAN FOR THE PROPULSION OF THE VESSEL)
 Received at London Office 30 MAR 1951

Date of writing Report 19 51. When handed in at Local Office 28.3.1951. Port of MIDDLESBROUGH.
 No. in Survey held at SOUTHBANK - ON - TEES. Date, First Survey 30.11.50 Last Survey 8.3.1951
 Reg. Book. (No. of Visits 10) Gross 9148.88 Net 5222.98

91026 on the M.V. "ATHELSULTAN."
 Built at SOUTHBANK - ON - TEES. By whom built SMITH'S DOCK CO. LTD. Yard No. 1210. When built 1951.
 Owners. ATHEL LINE LTD. Port belonging to LIVERPOOL.
 Installation fitted by CAMPBELL & ISHERWOOD LTD. When fitted 1951.
 Is vessel equipped for carrying Petroleum in bulk YES Is vessel equipped with D.F. YES E.S.D. YES Gy.C. YES Sub.Sig. - Radar YES.

Plans, have they been submitted and approved YES. System of Distribution TWO WIRE. Voltage of Lighting 110
 Heating 110 Power 110 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. 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 YES, and the results found as per Rule YES.
 Position of Generators FORE & AFT, ENGINE ROOM FORWARD ON STARTING PLATFORM 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 THWARTSHIPS FACING AFT ON PLATFORM ABOVE GENERATORS AND ADJACENT ENG. RM. FORWARD BULKHEAD.
 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 SINDANYO EBONY FINISH, 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. 500 AMP. TRIPLE POLE AIR BREAK CIRCUIT BREAKER. FITTED WITH OVERLOADS AND OIL DASH POT TIME LAGS ON TWO POLES, REVERSE CURRENT RELEASE, AND THIRD POLE COUPLED TO EQUALISER.
 and the switch and fuse gear (or circuit breakers) for each outgoing circuit DOUBLE POLE SINGLE THROW QUICK BREAK KNIFE SWITCH THROUGH DOUBLE POLE FUSES.

Are compartments containing switchboards composed of fire-resisting material or lined as per Rule YES Instruments on main switchboard 5
 ammeters 3 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 EARTH LAMPS COUPLED TO EARTH THROUGH SWITCHES AND FUSES.
 Switches, Circuit Breakers and Fuses, are they as per Rule YES, are the fuses an Approved Type YES
 make of fuses SIEMENS 'Z' are all fuses labelled YES. If circuit breakers are provided for the generators, at what overload do they operate 10%, and at what current do the reversed current protective devices operate 15%
 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 < 6.6V, 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 - or of the "HR" type - State how the cables are supported or protected CABLES ALONG PORT & STARBOARD SIDES OF FORE & AFT GANGWAY CLEATED TO SOLID STEEL TRAY PLATE & COVERED WITH SOLID STEEL PLATE. CABLES IN MACHINERY SPACES CLIPPED TO PERFORATED STEEL TRAY PLATES. CABLES IN PUMP ROOMS IN PLUMBERS PIPES. L.C. COVERED CABLES IN ACCOMMODATION CLIPPED TO WOOD GROUNDS.
 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 effectually 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

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... are they adequately ventilated... state battery capacity in 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... **YES**...

if so, how are they protected... **WIGAN FLAMEPROOF FITTINGS IN CENTRECASTLE AND 'VERTY' FLAMEPROOF FITTINGS IN PUMPROOMS.**

and where are the controlling switches fitted... **OFFICERS QUARTERS MIDSHIPS**... Are all fittings suitably ventilated... **YES**...

Searchlight Lamps, No. of... 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... **YES**...

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... **NO***... are all fuses of an Approved Cartridge Type... **YES**... make of fuse... **SIEMENS 'Z'**... Are the fittings for pump rooms, 'Tween deck spaces, etc., in accordance with the special requirements for such ships... **NO***... Are the cables lead covered as per Rule... **YES**...

E.S.D., if fitted state maker... **MARCONI, SEASOR**... location of transmitter... **FRAMES 42/3**... and receiver... **FRAMES 42/3**...

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**...

* SEE SECRETARY'S LETTERS DATED

PARTICULARS OF GENERATING PLANT.

DESCRIPTION OF GENERATOR.	No. of	MAKER.	RATED AT			Revs. per Min.	PRIME MOVER.	
			Kilowatts per Generator.	Volts.	Ampères.		TYPE.	MAKER.
MAIN	2	SUNDERLAND FORGE.	50	110	454	500	STEAM.	SUNDERLAND FORGE.
		NOS. 41102 & 41103						
	1	SUNDERLAND FORGE	50	110	454	500	DIESEL	NATIONAL GAS OIL ENG. CO.
EMERGENCY ROTARY TRANSFORMER		No. 41349						No. RA3-62315

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	50	2	37/083	454	628	36	V.C.	LEAD COVERED.
"	"	1	37/083	227	314	18	V.C.	LEAD COVERED
"	"	2	37/083	454	628	46	V.C.	LEAD COVERED
"	"	1	37/083	227	314	23	V.C.	LEAD COVERED
"	"	2	37/083	454	628	56	V.C.	LEAD COVERED
"	"	1	37/083	227	314	28	V.C.	LEAD COVERED.
EMERGENCY GENERATOR								
ROTARY TRANSFORMER: MOTOR								
"	"	GENERATOR...						

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

DESCRIPTION.	No. in Parallel per Pole.	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.
MAIN SWITCHBOARD TO MID-SHIPS SUB-BD. 'S1'	1	37/103	333	408	540	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO AFT SECT. PANEL 'S2'	1	37/072	88	260	120	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO AFT SECT. PANEL 'S3'	1	37/072	168	260	123	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO ENG. RM. PANEL. 'S4'	1	19/064	62	143	30	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO ENG. RM. PANEL. 'S5'	1	19/083	96	202	30	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO ENG. RM. WORKSHOP 'S6'	1	19/064	93	143	120	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO ENG. RM. LIGHTING. 'S7'	1	19/052	72	110	30	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO AFT BOATWINCH. 'S8'	1	37/072	175	260	120	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO ENGINE RM. PANEL 'S9'	1	37/072	161	260	54	V.C.	L.C.A.9B.
MAIN SWITCHBOARD TO COMPRESSOR SECT. BOX.	1	19/064	55	143	354	V.C.	L.C.A.9B.
'S1' TO WHEELHOUSE LIGHTING. DB 'S1-1'	1	7/036	20	24	165	V.I.R.	L.C.
'S1' TO NAV. BDGE LIGHTING. DB 'S1-2'	1	7/036	17	24	150	V.I.R.	L.C.

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.			
'S1' TO BOAT DECK LIGHTING. DB 'S1-3'	1	7/036	16	24	150	V.I.R.	L.C.
'S1' TO BDGE. DK. PORT LTG. DB 'S1-4'	1	7/044	25	31	90	V.I.R.	L.C.
'S1' TO BDGE. DK. STBD. LTG. DB 'S1-5'	1	7/036	19	24	24	V.I.R.	L.C.
'S1' TO CARGO LIGHTING. DB 'S1-6'	1	7/044	28	31	24	V.I.R.	L.C.
'S1' TO FORECASTLE LTG. DB 'S1-7'	1	7/036	10	24	360	V.I.R.	L.C.A.9B.
'S1' TO NAVIGATION INDICATOR.	1	7/052	2	37	180	V.I.R.	L.C.
ALTERNATIVE SUPPLY TO NAV. INDICATOR.	1	7/052	2	60	705	V.C.	L.C.A.9B.
'S1' TO CONNECTION FOR KETTLE.	1	7/029	9	15	165	V.I.R.	L.C.
MAIN SWITCHBOARD TO SUEZ CANAL SWITCH	1	19/064	28	143	855	V.C.	L.C.A.9B.
SUEZ CANAL SWITCH TO SUEZ CANAL PROJECTOR	1	19/064	28	143		V.C.	L.C.A.9B.
RADAR.	1	19/064	10	143	690	V.C.	L.C.A.9B.
GYRO COMPASS.	1	19/052	10	110	540	V.C.	L.C.A.9B.
WIRELESS.	1	19/064	15	143	690	V.C.	L.C.A.9B.
'S3' TO UPPER DECK PORT. DB 'S3-1'	1	7/036	13	24	105	V.I.R.	L.C.
'S3' TO UPPER DECK STBD. DB 'S3-2'	1	7/052	23	37	60	V.I.R.	L.C.
'S3' TO POOP DK. PORT AFT. DB 'S3-3'	1	7/052	16	37	210	V.I.R.	L.C.A.9B.
'S3' TO POOP DK. PORT FWD. DB 'S3-4'	1	7/052	20	37	180	V.I.R.	L.C.
'S3' TO POOP DECK STARBOARD. DB 'S3-5'	1	7/052	22	37	90	V.I.R.	L.C.
'S3' TO POOP DECK PORT AFT. DB 'S3-6'	1	7/052	9	37	210	V.I.R.	L.C.A.9B.
'S3' TO GALLEY. DB 'S3-7'	1	7/052	22	37	240	V.I.R.	L.C.A.9B.
'S7' TO ENGINE ROOM. PORT. DB 'S7-1'	1	7/044	15	31	75	V.I.R.	L.C.A.9B.
'S7' TO ENGINE ROOM. STBD. DB 'S7-2'	1	7/044	15	31	60	V.I.R.	L.C.A.9B.
'S7' TO ENGINE ROOM. PORT. DB 'S7-3'	1	7/044	15	31	180	V.I.R.	L.C.A.9B.
'S7' TO ENGINE ROOM. STBD. DB 'S7-4'	1	7/044	15	31	150	V.I.R.	L.C.A.9B.
'S7' TO KETTLE CONN.	1	7/029	9	15	45	V.I.R.	L.C.A.9B.
'S8' TO GALLEY SECTION BOX.	1	19/064	54	143	210	V.C.	L.C.
S.B. TO BAKERS OVEN.	1	19/064	36	143	27	V.C.	L.C.
S.B. TO 2KW. HOT PLATE	1	7/064	18	30	15	V.C.	L.C.

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.			
AIR HEAT UNITS NOS. 1 & 2	2	3.0	1	7/064	26	80	300/360	V.C.	L.C.
SUPPLY FAN.	1	0.5	1	7/029	6	15	180	V.I.R.	L.C.
FRESH WATER PUMP.	1	1.0	1	7/044	10	31	300	V.I.R.	L.C.A.9B.
ENGINE ROOM VENT FANS.	2	1.6	1	7/052	15	37	300/270	V.I.R.	L.C.A.9B.
FUEL OIL PURIFIERS.	2	3.75	1	7/064	32.6	80	80/90	V.C.	L.C.A.9B.
LUB. OIL PURIFIER.	1	3.5	1	7/064	30	80	90	V.C.	L.C.A.9B.
OIL FUEL PUMP	2	2.0	1	7/044	18.2	31	90/90	V.I.R.	L.C.A.9B.
OIL FUEL PURIFIER	1	2.0	1	7/044	18.2	31	90	V.I.R.	L.C.A.9B.
EXTRACTOR FAN.	1	0.6	1	3/036	7	10	90	V.I.R.	L.C.A.9B.
BOILER EXTRACTION FAN.	1	3.5	1	7/064	30	80	360	V.C.	L.C.A.9B.
FUEL VALVE COOL PUMP	2	2.0	1	7/044	18	31	210/210	V.I.R.	L.C.A.9B.
FUEL PRIMING PUMP.	1	1.5	1	7/044	14	31	240	V.I.R.	L.C.A.9B.
FRESH WATER STANDBY PUMP.	1	5.0	1	19/052	42	110	210	V.C.	L.C.A.9B.
DIESEL GEN. CIRC. PUMP.	1	4.0	1	7/064	35	80	135	V.C.	L.C.A.9B.
GRINDER.	1	3.0	1	7/052	25	37	150	V.I.R.	L.C.A.9B.
DRILL.	1	2.0	1	7/044	18	31	150	V.I.R.	L.C.A.9B.
LATHE	1	2.0	1	7/044	18	31	150	V.I.R.	L.C.A.9B.
SHAPER.	1	2.0	1	7/044	18	31	150	V.I.R.	L.C.A.9B.
FRESH WATER PUMP.	1	8.0	1	19/064	70	143	252	V.C.	L.C.A.9B.
BOAT WINCHES AFT.	2	5.0	1	7/064	43.3	80	150/90	V.C.	L.C.
STEERING GEAR MOTORS	2	25	1	27/072	192	260	360/360	V.C.	L.C.A.9B.
TURNING GEAR MOTOR	1	7.5	1	19/052	61	110	255	V.C.	L.C.A.9B.
BILGE & SANITARY PUMP.	1	18	1	19/083	140	202	210	V.C.	L.C.A.9B.
CRANE MOTOR.	1	3	1	7/064	26	80	150	V.C.	L.C.A.9B.
COMPRESSOR MOTOR.	1	5	1	7/064	42	80	30	V.C.	L.C.A.9B.
PUMP MOTOR.	1	1.5	1	7/036	14	24	240	V.I.R.	L.C.A.9B.
BOAT WINCHES MIDSHIPS.	2	7.5	1	19/044	61	92	185/105	V.C.	L.C.
AIR HEAT UNIT.	1	5.0	1	7/064	42	80	150	V.C.	L.C.
SUPPLY FAN.	1	0.5	1	7/029	6	15	90	V.I.R.	L.C.A.9B.
COLD CUPBOARD (CAPTAINS)	1	0.5	1	7/029	6	15	54	V.I.R.	L.C.
AIR CONDITIONING PLANT.	1	0.25	1	7/029	3	15	15	V.I.R.	L.C.
COMPRESSOR MOTOR.	1	1.5	1	7/036	14	24	15	V.I.R.	L.C.

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.

CAMPBELL & ISHERWOOD, LTD.

PER: *H. Meade*

Electrical Contractors.

Date *12th March 51.*

COMPASSES.

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

YES.

FOR SMITH'S CO. LTD.

C. E. Hunt

SHIPYARD MANAGER.

Builder's Signature.

Date *14-3-51.*

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, whether insulation tests, etc., have been made, opinions as to class, etc.).....

THE

ELECTRICAL EQUIPMENT FOR THIS VESSEL HAS BEEN INSTALLED UNDER SPECIAL SURVEY AND THE ARRANGEMENTS ARE IN ACCORDANCE WITH OR EQUIVALENT TO THOSE SHOWN ON THE APPROVED PLANS, THE SECRETARY'S LETTERS DATED 9:5:1950, 21:9:1950, 7:10:1950, 7:2:1951, 13:2:1951, AND THE RULES FOR ELECTRICAL EQUIPMENT. THE MATERIALS USED ARE OF GOOD QUALITY AND THE WORKMANSHIP IS GOOD.

ON COMPLETION, THE INSTALLATION WAS SEEN OPERATING UNDER WORKING CONDITIONS, THE VARIOUS PROTECTIVE DEVICES WERE ADJUSTED AND OPERATED, AND THE INSULATION RESISTANCE OF ALL CIRCUITS MEASURED AND FOUND GOOD.

THIS INSTALLATION IS IN MY OPINION SUITABLE FOR A VESSEL INTENDED FOR THE CARRIAGE OF MOLASSES OR PETROLEUM IN BULK.

SPECIAL NOTATION: D.F., E.S.D., Gyro C and Radar.

Noted Ent 12/4/51

Total Capacity of Generators..... *150* Kilowatts.

The amount of Fee ... £ *64* : *10* : ..

When applied for,

29 : *3* : *19* : *51*

When received,

19

Travelling Expenses (if any) £ : : ..

R. M. Williams
Surveyor to Lloyd's Register of Shipping.

Committee's Minute..... *FRI 13 APR 1951*

Assigned.....

See F.E. mchly rpt.