

18 JUN 1962

16 JUL 1962

Rpt. 4b

Date of writing report 2/5/62.

Received London

Port HULL.

No. 67905

Survey held at Hessle &amp; Hull.

In shops

No. of visits

On vessel 18'

First date

24. 11. 61.

Last date

1. 6. 62

## FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. Name "THEO H. SWANTON" Gross tons  
 Owners Melbourne Harbor Trust Commissioners. Port of Registry Melbourne.  
 Managers - Year Month  
 Hull built at Hessle. By Richard Dunston (Hessle) Ltd. Yard No. S.781 When 1962  
 Main Engines made at Stockport. By Mirrlees, Bickerton & Day. Eng. No. 56722 When 1962  
 Gearing made at - By - Blr. Nos. - When -  
 Donkey boilers made at - By - Blr. Nos. - When 1962  
 Machinery installed at Hessle. By Richard Dunston (Hessle) Ltd. When 1962  
 Particulars of restricted service of ship, if limited for classification 100A1 Hopper barge "To operate anywhere within the Port of Melbourne, also within Port Phillip Bay".  
 Particulars of vegetable or similar cargo oil notation, if required None.  
 Is ship to be classed for navigation in ice? No. Is ship intended to carry petroleum in bulk? No.  
 Is refrigerating machinery fitted? No. If so, is it for cargo purposes? No. Type of refrigerant -  
 Is the refrigerating machinery compartment isolated from the propelling machinery space? - Is the refrigerated cargo installation intended to be classed? -

The following particulars should be given as fully and as clearly as possible. Where the answer is "No" or "None", say so! Ticks and other signs of doubtful meaning are not to be used. Where the wording is not applicable to the installation, a black line may be inserted. If the main engines have been constructed at another port and are covered by a separate report, the particulars given in that report need not be repeated below, but the port and report number should be stated.

No. of main engines One. No. of propellers One. Brief description of propulsion system Oil Engine Direct drive.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Mirrlees KLSSDM6.

No. of cylinders per engine 6 Dia. of cylinders 15" stroke(s) 20" 2 or 4 stroke cycle 4 Single or double acting S.A.  
 Maximum approved BHP per engine 1098 at 275 RPM of engine and 275 RPM of propeller.  
 Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure Machinery numeral  
 Are the cylinders arranged in Vee or other special formation? If so, number of crankshafts per engine

TWO STROKE ENGINES. Is the engine of opposed piston type? If so, how are upper pistons connected to crankshaft?  
 Is the exhaust discharged through ports in the cylinders or through valve(s) in the cylinder covers? No. and type of mechanically driven scavenge pumps or blowers per engine and how driven

No. of exhaust gas driven scavenge blowers per engine Where exhaust gas driven blowers only are fitted, can the engine operate with one blower out of action?  
 If a stand-by or emergency pump or blower is fitted, state how driven No. of scavenge air coolers Scavenge air pressure at full power  
 Are scavenge manifold explosion relief valves fitted?

FOUR STROKE ENGINES. Is the engine supercharged? Are the undersides of the pistons arranged as supercharge pumps? No. of exhaust gas driven blowers per engine  
 No. of supercharge air coolers per engine Supercharge air pressure Can engine operate without supercharger?

TWO & FOUR STROKE ENGINES—GENERAL. No. of valves per cylinder: Fuel Inlet Exhaust Starting Safety  
 Material of cylinder covers Material of piston crowns Is the engine equipped to operate on heavy fuel oil?  
 Cooling medium for:—Cylinders Pistons Fuel valves Overall diameter of piston rod for double acting engines

Is the rod fitted with a sleeve? Is welded construction employed for: Bedplate Frames? Entablature? Is the crankcase separated from the underside of pistons?  
 Is the engine of crosshead or trunk piston type? Total internal volume of crankcase No. and total area of explosion relief devices  
 Are flame guards or traps fitted to relief devices? Is the crankcase readily accessible? If not, must the engine be removed for overhaul of bearings, etc?  
 Is the engine secured directly to the tank top or to a built-up seating? Built-up seating. How is the engine started? Compressed air.

Can the engine be directly reversed? If not, how is reversing obtained?  
 Has the engine been tested working in the shop? How long at full power?

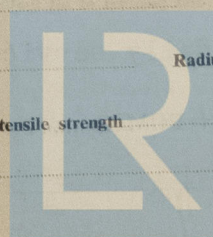
CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system State barred speed range(s), if imposed  
 for working propeller For spare propeller Is a governor fitted? Is a torsional vibration damper or detuner fitted to the shafting?  
 Where positioned? Type No. of main bearings Are main bearings of ball or roller

type? Distance between inner edges of bearings in way of crank(s) Distance between centre lines of side cranks or eccentrics of opposed piston engines  
 Crankshaft type: Built, semi-built, solid. (State which)

Diameter of journals Diameter of crankpins Centre Breadth of webs at mid-throw Axial thickness of webs  
 Side Pins Minimum  
 If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Approved  
 Webs Tensile strength

Diameter of flywheel Weight Are balance weights fitted? Total weight Radius of gyration  
 Diameter of flywheel shaft Material Minimum approved tensile strength

Flywheel shaft: separate, integral with crankshaft, integral with thrustshaft. (State which)



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MAIN GAS TURBINES. Name and Type No. at RPM of output shaft

No. of sets of turbines Open or closed cycle BHP per set

How is drive transmitted to propeller shaft?

ARRANGEMENT OF TURBINES. HP drives at RPM HP gas inlet temperature pressure

IP drives at RPM IP gas inlet temperature pressure

LP drives at RPM LP gas inlet temperature pressure

No. of air compressors per set Centrifugal or axial flow type? Material of turbine blades

compressor blades No. of air coolers per set No. of heat exchangers per set How are turbines started?

How is reversing effected? Are the turbines operated in conjunction with free piston gas generators?

Total No. of free piston gas generators Diameter of working pistons Diameter of compressor pistons No. of double strokes per

minute at full power Gas delivery pressure Gas delivery temperature Have the turbines and attached equipment been tested working

in the shop? How long at full power?

ELECTRIC PROPULSION (Reciprocating engines or gas turbines. Electrical particulars to be reported on Form 4d.)

No. of generators KW per generator at RPM AC or DC? Position

No. of propulsion motors SHP per motor at RPM Position

How is power obtained for excitation of generators? Motors?

REDUCTION GEARING (Reciprocating engines or gas turbines. A small line sketch should be attached showing arrangement of gearing.)

Is gearing of single or double helical type? If single, position of gear thrust bearing Is gearing of epicyclic type?

PCD of pinions: First reduction Second reduction PCD of wheels: First reduction Main

Material of pinions Tensile strength Material of wheel rims Tensile strength

Are gear teeth surface hardened? How are teeth finished? Diameter of pinion journals Wheel shaft

journals Are the wheels of welded construction? Is gearcase of welded construction? Has the wheel/gearcase been heat treated on completion

of welding? Where is the propeller thrust bearing located? Are gear bearings of ball or roller type?

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine/turbine and gearing or between engine and line shafting give brief

description and, for clutches, state how operated

Can the main engine be used for purposes other than propulsion when de-clutched? If so, what?

STRAIGHT SHAFTING. Diameter of thrustshaft Material Minimum approved tensile strength

Shaft separate or integral with crank or wheel shaft? Separate. Diameter of intermediate shaft 9 1/2" Material S.M. Ingot steel.

Minimum approved tensile strength 28 tons/sq.in Diameter of screwshaft cone at large end 9.7/8" Is screwshaft fitted with a continuous liner? No.

Diameter of tube shaft. (If these are separate shafts) Is tube shaft fitted with a continuous liner in way of stern tube Thickness of screw/tube shaft liner at

bearings Thickness between bearings Material of screw/tube shaft S.M. Ingot steel. Minimum approved tensile strength 28 tons

Is an approved oil gland fitted? Yes If so, state type Newark No. 2. Length of bearing next to and supporting propeller 3'-4"

Material of bearing G.I. Bush White metal lined. In multiple screw vessels is the liner between stern tube and A bracket continuous? If not, is the exposed length of shafting between

liners readily visible in dry dock?

PROPELLER. Diameter of propeller 7'-9" Pitch 4'-8" Built up or solid Solid. Total developed surface 26 sq.ft.

No. of blades 4 Blade thickness at top of root fillet 3.54" Blade material Manganese Bronze Moment of inertia of dry propeller 7870 lb/ft.

If propeller is of special design, state type Is propeller of reversible pitch type? No. If so, is it of approved design? 7870 lb/ft.

State method of control Material of spare propeller Manganese Bronze Moment of inertia

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine One Can they be de-clutched? Yes.

No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) One 15.7 cu.ft./min. by S.S.A.

Russell Newbery Eng. Sou. D. 18565. One 12.6 cu.ft./min. P.S.A. Electric drive Sou. D. 18707.

No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Two 23 cu.ft. Port and Starbd.

E.R. aft. No. 23/9202. and 23/9194. Lds. Cert. No. C. 41434 & 41382.

How are receivers first charged? Compressor driven by hand start diesel engine. Maximum working pressure of starting air system 300 lb/sq. inch Are the safety devices in

accordance with the Rules? Yes. Has the starting of the main engines been tested and found satisfactory? Yes.

COOLERS. No. of main engine fresh water coolers One. No. of main engine lubricating oil coolers One.

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure

Two Diesel oil daily service, One each Port & Starboard upper casing.

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) One F.W., One S.W., Two Lub. Oil, One Lub. oil pressure, One L.C. scavenge

Service for which each pump is connected to be marked thus X														Oily Bilge Sep.	
INDEPENDENT PUMPS															
Name below essential pumps, state position and how driven. Give capacity of bilge pumps.															
SUCTION															
DELIVERY															
Bilge Main Bilge Direct Ballast Main Oil Fuel Fresh Water Cooling Sea Tanks Lub. Oil Hopper Ballast Salt Water Cooling Fresh Water Cooling Oil Fuel Tanks Fire Main Lub. Oil Piston Cooling O/Bd. Dom. FW.															
G.S. Pump s.s.f. Centre Electric driven 70 TPH														X	X
Ballast pump s.s.f. Electric driven 300TPH														X	
Bilge pump s.s.f. in board Electric driven 5 TPH														X	X
Bilge pump belt driven from M.E. (ss) 25 TPH														X	X
F.W. pump Electric driven 3 TPH														X	
De Watering pump p.s.f. Electric driven 300 TPH														X	
O.F. transfer pump Electric driven.															
Diesel driven emergency fire pump.															

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room. One - 3" fore hold; One - 4" fore peak; One 5" after peak (Ballast). One - 2" steering gear comp. (Hand pump).

No. and size connected to main bilge line in main engine room Two - 2 1/2" p. & s. In tunnel

In aux. engine room One - 3" M.E. Belt driven Bilge pump aft. Size and position of direct bilge suction in machinery spaces One - 2" aft. One - 4".

Size and position of emergency bilge suction in machinery spaces. Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? Yes. Do the piping arrangements comply with the Rules in 2006? Yes.

STEAM & OIL ENGINE AUXILIARIES				
Position of each	Type	Made by	Port and No. of Rpt. or Cert.	Driven Machinery (For electric generators, state output)
Port side	LE6 No. 6LE0359/55	National.	Mch. Rpt. 10/46 No. C. 74409.	75 KW Alternator.
Starboard side.	LE6 No. 6LE0360/55	-do-	Mch. Rpt. 10/46 No. C. 74409.	-do- -do- -do-
Starboard side aft	No. 719A11762.	Russell-Newbery.	Sou. Rpt. 10 No. D. 18565.	Air compressor.
Fore hold.	No. 10J9944.	-do-	Sou. Rpt. 10 No. D. 17577.	Emergency fire pump.

Is electric current used for essential services at sea? Yes. If so, state the minimum No. and capacity of generators required in order that the ship may operate at sea. One 75 K.W. Is an electric generator driven by Main Engine? No.

STEAM INSTALLATION. No. of donkey boilers burning oil fuel None. W.P. Type

Position Is a superheater fitted? Are these boilers also heated by exhaust gas? None. No. of donkey boilers heated by exhaust gas only? None. W.P.

Type Position Can the exhaust heated boilers deliver steam directly to the steam range or do they operate only as economisers in conjunction with oil fired boilers? Port and No. of report on donkey

boilers Is steam essential for operation of the ship at sea? Are any steam pipes over 3 ins. bore? If so, what is their material? For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? No. of oil burning pressure

units No. of steam condensers No. of Evaporators

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) One Hand and Electric driven Hydraulic type H.30 Frydenbo slip No. 535 31/10/61 L.R. Bergen Cert. No. 10581.

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes. Brief description of arrangements 2 - 10 Gall. & 3 - 2 Gall. froth extinguishers; 2 hydrants Hoses and jet spray nozzles, O.F. outlet valves extended spindles, O.F. transfer remote stop outside E.R., Diesel driven emergency fire pump.

Has the spare gear required by the Rules been supplied? Yes. Has all the machinery been tried under full working conditions and found satisfactory? Yes. Date and duration of full-power sea trials of main engines 29/5/62 6 hours. Does this machinery installation contain any features of a novel or experimental nature? (Give particulars)

No. The foregoing description of the main engine and installation is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable).

per pro Richard J. Henson, M.E.S.S. Ltd. Builder

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GENERAL REMARKS

State if the machinery has been constructed and/or installed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship and give recommendations for classification, including any special notation to be assigned. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible.

This Machinery has been constructed and installed under Special Survey in accordance with the Rules, Approved plans and Secretary's letters, tested under working conditions and found satisfactory.

The materials and workmanship are good.

The Machinery is eligible in my opinion to be classed in the Register

Book with the record of LMC 6,62 and Notation TSOG.

Oil Engine 4 S.C.S.A. 6 cyl. 15" dia. x 20" stroke.

*Vincent*

Engineer Surveyor to Lloyd's Register of Shipping.

PARTICULARS OF IDENTIFICATION MARKS (Including Port of origin) of important Forgings and Castings. (Copies of certificates should be forwarded with report.)

RODS Please see Mch.Rpt. 4b No.622.

CRANKSHAFT OR ROTORSHAFT -do- -do- -do-

FLYWHEEL SHAFT

THRUSTSHAFT -do- -do- -do-

GEARING

INTERMEDIATE SHAFTS Lloyd's Sld. No.9649 J.M. 30/5/61. 14/3/62. D.V. Hul.

SCREW AND TUBE SHAFTS Lloyd's Sld.No.9703 J.M. 15/6/61. 14/3/62 D.V. Hul.

PROPELLERS 4 bladed bronze Lloyd's No.73024 GHM. Gls. 28/9/61. Glas.Cert.No.C.73024.

OTHER IMPORTANT ITEMS C.I. sterntube tested 30 lb/sq.inch R.H.B. 3/10/61. Hul.Cert.No.3995.

Spare tailshaft Lloyd's No.9704 Sld. J.M. 15/6/61. D.V. 30/3/62. Hul.

Is the installation a duplicate of a previous case? Yes. If so, state name of vessel "CHARLES H. MCKAY"

Date of approval of plans for crankshaft - Straight shafting 16/11/61. Gearing - Clutch -

Separate oil fuel tanks 19/10/61. Pumping arrangements 8/8/61. Oil fuel arrangements 8/8/61.

Cargo oil pumping arrangements - Air receivers - Donkey boilers -

Dates of examination of principal parts:-

Fitting of stern tube 14/3/62 Fitting of propeller 14/3/62 Completion of sea connections 22/3/62 Alignment of crank shaft in main bearings -

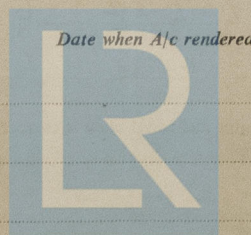
Engine chocks & bolts 10/5/62 Alignment of gearing - Alignment of straight shafting 10/5/62 Testing of pumping arrangements 24/5/62.

Oil fuel lines 24/5/62 Donkey boiler supports - Steering machinery 29/5/62 Windlass 29/5/62

Date of Committee MONDAY 13 AUG 1962 Special Survey Fee £53.15s.0d.

Decision Signed for GB.

Expenses £4. 15s.0d.



13 JUL 1962

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