

Rpt. 4b

Date of writing report 9/7/56 Received London 1 AUG 1956 Port HULL, No. 62347.
 Survey held at Thorne No. of visits 8 In shops On vessel 8 First date 5.1.56 Last date 13.6.56.

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 35663 Name Motor Tanker "ESSO LEEDS" Gross tons 140
 Owners Esso Pet. Co. Ltd. Managers - Port of Registry Hull
 Hull built at Thorne By Richard Dunston, Ltd. Yard No. T.914 Year Month When 1956 6
 Main Engines made at Stamford By Blackstone & Co. Ltd. Eng. No. M.65860 When 1955 10
 Gearing made at Slough By Modern Wheel Drive, Ltd.
 Donkey boilers made at - By - Blr. Nos. - When -
 Machinery installed at Thorne By Richard Dunston, Ltd. When 1956

Particulars of restricted service of ship, if limited for classification "For service on the River Humber and the Trent and Aire & Calder Canals."

Particulars of vegetable or similar cargo oil notation, if required -
 Is ship to be classed for navigation in ice? No Is ship intended to carry petroleum in bulk? Yes
 Is refrigerating machinery fitted? No If so, is it for cargo purposes? - 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 Deisel driving through 2:1 Reverse Reduction Gearing.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. Blackstone EVMGR4 Heavy Oil

No. of cylinders per engine 4 Dia. of cylinders 8 3/4" stroke(s) 11 1/2" 2 or 4 stroke cycle 4 Single or double acting Single

Maximum approved BHP per engine 180 at 600 RPM of engine and 308.5 RPM of propeller.

Corresponding MIP (For DA engines give MIP top & bottom) Maximum cylinder pressure 800 lb/sq.in. Machinery numeral 36

Are the cylinders arranged in Vee or other special formation? No 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? No Are the undersides of the pistons arranged as supercharge pumps? No No. of exhaust gas driven blowers per engine

None No. of supercharge air coolers per engine None 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? 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? Yes Is the crankcase readily accessible? Yes 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 How is the engine started? Compressed air

Can the engine be directly reversed? No If not, how is reversing obtained? Reverse Reduction Gear

Has the engine been tested working in the shop? How long at full power? 17/12/55. (See also attached ltr.)

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 None For spare propeller None Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? Yes

Where positioned? Between Engine Flywheel & Reversing Gear Pinion Shaft. Type Combined flexible coupling and Nodal Torsional Vibration Damper 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

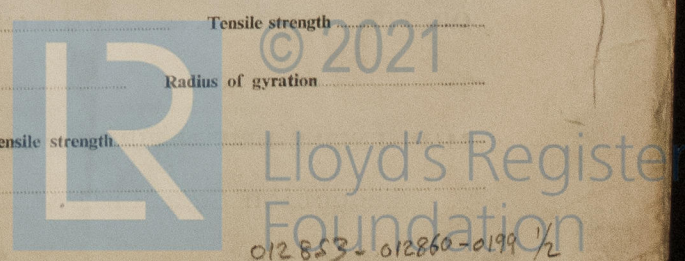
Crankshaft type: Built, semi-built, solid. (State which) Diameter of journals Diameter of crankpins Centre Side Breadth of webs in mid-throw Axial thickness of webs

If shrunk, radial thickness around eyeholes Are dowel pins fitted? Crankshaft material Journals Pins Minimum Approved 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)



MAIN GAS TURBINES. Name and Type No. _____
No. of sets of turbines _____ Open or closed cycle _____ BHP per set _____ at _____ RPM of output shaft _____
How is drive transmitted to propeller shaft? _____
ARRANGEMENT OF TURBINES. HP drives _____ at _____ RPM HP gas inlet temperature _____ pressure _____
(A small diagram should be attached showing gas cycle.) 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 _____ Material of 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 _____ 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? _____ Reverse Reduction Gear Box Are gear bearings of ball or roller type? _____

CLUTCHES, FLEXIBLE COUPLINGS, ETC. If a clutch or other flexible connection is fitted between engine and gearing _____
description and, for clutches, state how operated _____ Combined flexible coupling and Nodal Torsional Vibration Damper

Can the main engine be used for purposes other than propulsion when de-clutched? No If so, what? _____

STRAIGHT SHAFTING. Diameter of thrust shaft _____ Material _____ Minimum approved tensile strength _____
Shaft separate or integral with crank or intermediate shaft? _____ Diameter of intermediate shaft _____ Material _____ O.H.S. _____

Minimum approved tensile strength _____ 28ton/sq.inch Diameter of screwshaft cone at large end _____ 4.333" 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 screwshaft _____ Forged steel Minimum approved tensile strength _____ 28tons/

Is an approved oil gland fitted? Yes If so, state type _____ Newark Length of bearing next to and supporting propeller _____ 1'6"

Material of bearing _____ White Metal 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 _____ 53" Pitch _____ 41 1/2" Built up or solid _____ Solid Total developed surface _____ 1330 sq. in.

No. of blades _____ 5 Blade thickness at top of root fillet _____ 1.75 Blade material _____ Manganese Bronze Moment of inertia of dry propeller _____ Rad. of Gyr. _____ 10'-7"

If propeller is of special design, state type _____ No Is propeller of reversible pitch type? No If so, is it of approved design? _____

State method of control _____ Material of spare propeller _____ C.I. Propeller not designed (For use with T.914/5/6) 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 F.A.D. 5.95 cu.ft/min.: H.O. Aux. Engine (s.s.a.) Sou. D.8053

No. of starting air receivers. (Main and _____ State capacity of each, position in ship and Port and No. of Certificate) _____ Three: (p.s.a.) Mch. C.7841: 5 c.ft

How are receivers first charged? Hand started Aux. Engine Maximum working pressure of starting air system _____ 395 lb./sq.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: also one for gearing unit

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure _____ One (subdivided) After E.Room Bulkhead

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) _____ One S.W.: One F.W. Cooling: Two L.O.: also one L.O. off

Reduction Gear Unit.

INDEPENDENT PUMPS Name below essential pumps, state position and how driven. Give capacity of bilge pumps.	Service for which each pump is connected to be marked thus X												
	SUCTION							DELIVERY					
	Bilge Main	Bilge Direct	Ballast Main	Oil Fuel	Fresh Water Cooling	Sea	Feed Tanks	Lub. Oil	Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Peak Tanks	Fire Main
G.S.Pump: P.S. Aux. 30TPH	X	X			X	X				X	X	X	X
G.S.Pump: S.S. Aux. 30TPH	X				X	X				X	X	X	X

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room For'd C/D 1 x 1 1/2 (Rotary Hand); ; x 1 1/2 (Rotary Hand)

Pump Room

No. and size connected to main bilge line in main engine room 2 x 2"

In tunnel -

In aux. engine room - Size and position of direct bilge suction in machinery spaces 1 x 2 1/2: p.s.a.

Size and position of emergency bilge suction in machinery spaces as above

Is the bilge or ballast system fitted with means for separating oily water on the overboard discharge side? No Do the piping arrangements comply with the Rules including special requirements for ships carrying petroleum in bulk, cargo oil or classed for navigation in ice? (strike out words not applicable). 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)
P.S.A.	Heavy Oil	R.A. Lister (Marine Sales) Ltd.	Blr. Rpt. 10/4C. S.C.4633	G.S.P. & Cargo Pump
S.S.A.	Heavy Oil	R.A. Lister (Marine Sales) Ltd.	Blr. Rpt. 10/4C. S.C.4459	G.S.P. Air Compr. 2 Elec. Generators One 2.1KW: One 15KW 110V 110/160 : Direct Drive Belt driven

Is electric current used for essential services at sea? No If so, state the minimum No. and capacity of generators required in order that the ship may operate

at sea. Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of donkey boilers burning oil fuel _____ W.P. _____ Type _____

Position _____

Is a superheater fitted? _____ Are these boilers also heated by exhaust gas? _____ No. of donkey boilers heated by exhaust gas only? _____ 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) Hand - Rod and Wire -

Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements. Hose with Jet Spray nozzle
Walter-Kilde system) 6 off 50 lb. CO₂ Bottles in Pump Room; Alarm Bell in Eng. Room: 2 off 10 lb.
for machy. spaces 002 Portable in Eng. Room: Sand Box.
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-
As approved per Lon.Ltr. 7/3/55.
power sea trials of main engines 13.6.55 : 9 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 DUNSTON, LTD.

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