

Rpt. 4b

Date of writing report 23rd January, 1958.

Received London 28 JAN 1958

Port M A L M Ö

No. 3734

Survey held at M A L M Ö

In shops 44
On vessel 40First date 12th March, 1957
7th October, 1957Last date 7th October, 1957
14/1 1958.

FIRST ENTRY REPORT ON INTERNAL COMBUSTION MACHINERY

No. in R.B. 42711 Name M/A "SOUTHERN CLIPPER" Gross tons 13.069

Owners Rederi AB Clipper Managers E. Hansen Port of Registry Malmö

Hull built at Malmö By Kockums Mek. Verkstads AB Yard No. 394 Year Month When 1958-1

Main Engines made at Malmö By Kockums Mek. Verkstads AB Eng. No. 772 When 1957

Gearing made at - By -

Donkey boilers made at Gothenburg By AB Lindholmens Varv Blr. Nos. 3210/1 When 1957

Machinery installed at Malmö By Kockums Mek. Verkstads AB When 1958

Particulars of restricted service of ship, if limited for classification ---

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? Yes If so, is it for cargo purposes? No Type of refrigerant Freon

Is the refrigerating machinery compartment isolated from the propelling machinery space? Yes Is the refrigerated cargo installation intended to be classed? No

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 2 S.C.S.A. Heavy Oil Engine; Crosshead Type.

MAIN RECIPROCATING ENGINES. Licence Name and Type No. MAN K9Z 78/140 A

No. of cylinders per engine 9 Dia. of cylinders 780 mm stroke(s) 1400 mm 2 or 4 stroke cycle 2 Single or double acting Single

Maximum approved BHP per engine 8100 at 115 RPM of engine and 115 RPM of propeller.

Corresponding MIP 6.3 kg/cm² (For DA engines give MIP top & bottom) Maximum cylinder pressure 50 kg/cm² Machinery numeral 1620

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? No 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? Ports in Cyl:s No. and type of mechanically driven scavenge pumps or blowers per engine and how driven One; Piston type; Connected at forward end to Main Engine Crankshaft.

No. of exhaust gas driven scavenge blowers per engine None 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 None No. of scavenge air coolers None Scavenge air pressure at full power 0.17 kg/cm² Are scavenge manifold explosion relief valves fitted? Yes

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 One Inlet None Exhaust One Starting One Safety One

Material of cylinder covers Cast Steel Material of piston crowns Cast Steel Is the engine equipped to operate on heavy fuel oil? Yes

Cooling medium for: Cylinders F.W. Pistons F.W. Fuel valves F.W. Overall diameter of piston rod for double acting engines ---

Is the rod fitted with a sleeve? No Is welded construction employed for: Bedplate? Yes Frames? Yes Entablature? --- Is the crankcase separated from the

underside of pistons? Yes Is the engine of crosshead or trunk piston type? Cross-head Total internal volume of crankcase 160 m³ No. and total area of explosion relief

devices 10 & 58.1 dm² 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? To built up seat-How is the engine started? By Compressed Air. ing.

Can the engine be directly reversed? Yes If not, how is reversing obtained? ---

Has the engine been tested working in the shop? Yes How long at full power? Run for 23 hours duration without any load at all.

CRANK & FLYWHEEL SHAFTING. Date of approval of torsional vibration characteristics of the propelling machinery system 15/12 1956. State barred speed range(s), if imposed

For working propeller - For spare propeller - Is a governor fitted? Yes Is a torsional vibration damper or detuner fitted to the shafting? No

Where positioned? - Type - No. of main bearings 11 Are main bearings of ball or roller

type? No Distance between inner edges of bearings in way of crank(s) 1040 mm Distance between centre lines of side cranks or eccentrics of opposed piston engines ---

Crankshaft type: Built, semi-built, solid. (State which) Semi-Built.

Diameter of journals 530 mm Diameter of crankpins Centre 525 mm Breadth of webs at mid-throw 850 mm Axial thickness of webs 315 mm

If shrunk, radial thickness around eyeholes 245 mm Are dowel pins fitted? No Crankshaft material Journals Forged S.M. Steel Pins Cast S.M. Steel Minimum 44 kg/mm² Approved 44

Webs Cast Tensile strength 44

Diameter of flywheel 2682 mm Weight 3600 kg Are balance weights fitted? No Total weight --- Radius of gyration ---

Diameter of flywheel shaft 530-400 mm Material S.M. Steel Minimum approved tensile strength 44 kg/mm²

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

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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
 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
 minute at full power Gas delivery pressure Gas delivery temperature Have the turbines and attached equipment been tested work
 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 declutched? If so, what?

STRAIGHT SHAFTING. Diameter of thrustshaft 406 mm Material S.M. Steel Minimum approved tensile strength 44 kg/mm²
 Shaft separate or integral with crank or wheel shaft? Separate Diameter of intermediate shaft 406 mm Material S.M. Steel
 Minimum approved tensile strength 44 kg/mm² Diameter of screwshaft cone at large end 466 mm Is screwshaft fitted with a continuous liner? Yes
 Diameter of tube shaft. (If these are separate shafts) Is tube shaft fitted with a continuous liner in way of stern tube Thickness of screwshaft liner
 bearings 22 mm Thickness between bearings 16,5 mm Material of screwshaft S.M. Steel Minimum approved tensile strength 44 kg/mm²
 Is an approved oil gland fitted? No If so, state type Length of bearing next to and supporting propeller 2115 mm
 Material of bearing Lignum vitae 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 5740 mm Pitch 4334 mm Built up or solid Solid Total developed surface 12,70 m²
 No. of blades Four Blade thickness at top of root fillet 250 mm AT 0,2R Blade material Bronze Moment of inertia of dry propeller 95000 kgm²
 If propeller is of special design, state type Is propeller of reversible pitch type? No If so, is it of approved design?
 State method of control Material of spare propeller Cast Iron Moment of inertia 110000 kgm²
 (Mammuteisen)

AIR COMPRESSORS & RECEIVERS. No. of main engine driven compressors per engine None Can they be declutched?
 No. of independently driven air compressors. (State capacity, prime mover, position in ship, and Port and No. of certificate) Three; 2 x 260 m³/h Electric Motor
P.S. ER Floor; One Emergency Heavy Oil Engine P.S. E.R. Platform; Not tested.
 No. of starting air receivers. (Main and Aux. State capacity of each, position in ship and Port and No. of Certificate) Two; 2 x 10,2 m³; P & S, Aft, E.R. Platform
Deck; Hbg No. 1044.
 By handstarted driven emergency air
 How are receivers first charged? compressor (Also by raising of steam) Maximum working pressure of starting air system 30 kg/cm² Are the safety devices
 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 Two No. of main engine lubricating oil coolers Two

OIL FUEL TANKS. No. and position of oil fuel settling or service tanks not forming part of hull structure None

MAIN ENGINE DRIVEN PUMPS (No. and Purpose) One; Scavenge Air; Nine; Oil Fuel Injection.

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	Donkey Boiler Feed	Salt Water Cooling	Fresh Water Cooling	Oil Fuel Tanks	Fire Main	Lub. Oil
E.R. Floor Stbd. side:-														
2 El. Lubricating F & A								X						X
2 El. S.W. Cooling F & A						X				X				
2 El. F.W. Cyl. Cool. F & A					X						X			
2 El. F.W. Piston " F & A					X									X
1 El. Bilge; 70 m ³ /h outb. & inb.	X	X												
2 El. O.P. Inj. valve cool.					X						X			
E.R. Floor Port side:-														
1 El. Fire & Sanitary						X							X	
1 El. Cond. Circ. 400 m ³ /h.	X	X				X				X				
1 El. Oil Fuel Transfer (Steam)				X								X		
1 Steam Butterworth						X							X	
1 " O.P. " "				X								X		
1 El. F.W. Aux. Eng. Cool.					X						X			
1 El. S.W. " " "						X				X				
E.R. Platform Aft:-														
2 Steam Oil Burning				X										X
2 " Feed							X		X					

BILGE SUCTIONS. No. and size in each hold, deep tank or pump room 2 x 4" Dry Cargo Hold; 2 x 5" Deep Tank; 1 x 4" Forward Pump Room;
2 x 4" Main Pump Room.
 No. and size connected to main bilge line in main engine room 3 x 3 1/2"
 In aux. engine room Size and position of direct bilge suction in machinery spaces 2 x 5"
 In tunnel
 Size and position of emergency bilge suction in machinery spaces 1 1/2" Forward End
 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 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)
E.R. Floor P.S.	Heavy Oil Engine	Messrs. Kockums	Mmo F.E. Rpt. 3734	A.C. Generator 290 KVA
E.R. Floor S.S.	" " "	" " "	" " " 3734	" " 290 KVA
E.R. Platform P.S.	Steam Turbine	Messrs. Jönköp- ings Mek. Verkstad	Got. " " 23606	" " 290 KVA

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
250 KVA Is an electric generator driven by Main Engine? No

STEAM INSTALLATION. No. of donkey boilers burning oil fuel Two W.P. 180 lbs/sq" Type Single ended Multitubular Scotch.
 Position On a Platform aft in Engine Room.

Is a superheater fitted? No Are these boilers also heated by exhaust gas? No No. of donkey boilers heated by exhaust gas only? One W.P. 170 lbs/sq"
 Type Position On a top Platform aft in E.R. 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? Only as economiser Port and No. of report on donkey
 boilers Gothenburg No. 22962 Is steam essential for operation of the ship at sea? No Are any steam pipes over 3 ins. bore? Yes If so, what is their
 material? Steel For oil fired boilers is the arrangement of pipes, valves, controls, etc., in accordance with the Rules? Yes No. of oil burning pressure
 units Two No. of steam condensers Two No. of Evaporators One

STEERING GEAR. (State No. and Type of Steam Engines, Electric Motors, Hydraulic Pumps and other particulars) Two El. Motors H.J. Scott, Belfast
Hydraulic Steering Gear No. HG 6937/8 Made by Messrs. John Hastie & Co. Ltd.
 Have the Rule Requirements for fire extinguishing arrangements been complied with? Yes Brief description of arrangements 4 Fire Hydrants with hoses.
1 4 10 Gallon Portable and 6 4 10 litres Form Extinguishers; 1 CO₂ Extinguisher for El. Equipm. Steam smothering
under donkey boilers and engine room floor.
 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-
 over sea trials of main engines 14/1 1958 - 8 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).
 No.
 Builder KOCKUMS
MEKANISKA VERKETADS AKTIEBOLAG
G. Lundqvist
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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 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.

The Main and Auxiliary engines of this vessel have been constructed under Special Survey in accordance with the Rules, approved plans and Secretary's letters.

The material and workmanship are good and copies of certificates are attached.

The machinery has been securely fitted in the vessel under my supervision and to my satisfaction and has been tested under full power on a trial trip and found in order.

All pumps for essential service have been examined and tested in accordance with the Rules and as per certificate attached.

It is the Owners' intention to carry out the Machinery survey of this vessel on the Continuous Survey basis.

It is hoped this merits the favourable consideration of the Committee.

The machinery of this vessel is eligible, in my opinion, to be classed IMC 1.58; Tail Shaft (C.L.) and working pressure of 2 donkey boilers 180 lbs/sq"; and 1 exhaust gas economiser fitted with working pressure 170 lbs/sq".

L. J. Brauer
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 Piston: Mmo. No. 785, 786, 788, 991, 992 SG. 9.5.57. Mmo. No. 612 SG. 6.8.57. (Got.)
Mmo. No. 983, 986 LL. 10.5.57. (Got.).

Rods-Connecting:- Mmo. No. 974-982 SG. 12.3.57. (Got.); Mmo. No. 679 LL. 17.10.56 (Got.).

Flywheel Shaft
CRANKSHAFT OR ROTOR SHAFT Mmo. No. 663 LL. 26.4.57 (Got.).

Thrust Shaft
FLYWHEEL SHAFT Mmo. No. 1429 LL. 28.9.57. (Got.).

Crank Shaft
THRUST SHAFT Got. 4258/16/60 A.S. 17.5.56.

GEARING

INTERMEDIATE SHAFTS Mmo. No. 1428 LL. 28.9.57. (Got.).

SCREW AND TUBE SHAFTS Ordinary Got. No. 872 E.J. 17.1.57; Spare Got. No. 873 E.J. 17.1.57.

PROPELLERS Ordinary Ion. 21.2.57 A.D.H.; Spare: HAM No. 150941 H.K.A. 5.7.57. 13/1/57

OTHER IMPORTANT ITEMS Crossheads: Mmo. No. 804/5; 998; 1018; 4264-68; 4278 LL. 7.5.57. (Got.).

Is the installation a duplicate of a previous case? No. If so, state name of vessel -
Date of approval of plans for crankshaft 15.12.56. Straight shafting 15.12.56 Gearing - Clutch -
Separate oil fuel tanks None Pumping arrangements 29.4.56. Oil fuel arrangements 29.4.57.
Cargo oil pumping arrangements 22.3.57. Air receivers 17/9 1956 Donkey boilers 29.3 & 29.5.56.
Dates of examination of principal parts:-
Fitting of stern tube 30.9.57 Fitting of propeller 5.10.57. Completion of sea connections 7.10.57 Alignment of crankshaft in main bearings 14.11.57
Engine chocks & bolts 14.11.57 Alignment of gearing - Alignment of straight shafting 14.11.57 Testing of pumping arrangements 8 & Photo test
Oil fuel lines 20.12.57 Donkey boiler supports 17.12.57 Steering machinery 14.1.58 Windlass 14.1.58.

Date of Committee

Decision

See Rpt. 1.

Special Survey Fee Dur. Constr. Kr. 5.62
" " " " Inst. Kr. 3.11

ME. Bedplate & Ent. Kr. 50
2 Condensers Kr. 12
Expenses
1 Butterworth heater Kr. 9

Date when A/c rendered 27/1 1958.

