

23 MAR 1959

Rpt. 4c

Date of writing report 9.3.59 Received London Port Hamburg No. 7314
Survey held at Hamburg No. of visits - First date - Last date see Rpt. 9

FIRST ENTRY REPORT ON AUXILIARY STEAM TURBINE OR STEAM RECIPROCATING ENGINES

Name of Ship "TINA ONASSIS" Owners Palmas Transportation Co.
(Or Contract No. if name unknown) (Or Consignees)
Ship Built at Hamburg by Howaldtswerke AG. when 1953 Yard No. 885
Auxiliary turbines or engines made at Hamburg by Howaldtswerke AG. when 1953 Eng. Nos. 350 112-1
Total No. of sets and description 2 sets, each consisting of 1 impulse-reaction-turbine with single reduction gear, driving 1 alternator, each set having its own condenser.

STEAM TURBINES. No. of turbines per set 1 BHP per set 804 Steam pressure 586 lbs Steam temperature 830°F
Type of turbines impulse reaction turbines with 2 impulse stages and 17 reaction stages, Makers Type UK 5
Particulars of gearing single reduction gear
RPM of turbine shaft(s) 7500 rpm PCD of pinion(s) 128.17 mm PCD of wheel(s) 800.21 mm Material of pinion(s) Mn-Si-Steel Material of wheel rim(s) Mn-Si-Steel Has rotor been dynamically balanced? yes Diameter of rotor shaft at bearings 110 mm Does the set include a steam condenser? Yes Is an emergency governor fitted? yes No. and purpose of attached pumps 1 lub. oil pump Has the set been tested in the shop? on board If so, for how long at full power? 6 hours Was the governing tested and found satisfactory? yes Was the set tested with driven machinery attached? yes
Identification marks Rotors: Pc 57-58-59 AB-WU 9.52 Particulars of driven machinery 1 alternator (each set)
Pc 61-62-63 AB-WU 9.52 Maker BBC, Type Wyk 236 a-spez.
Pinions: Lloyds FS 815 and 815 B 28.12.51 Nos. port M 34435, starb. M 34437
Wheelrims: Pc 42-AB-WU-3.52 and Pc 53-AB-WU-7.52 rating: 750 KVA at 1200 rpm, 450 Volts, 960 Amps, 60 Hz

STEAM RECIPROCATING ENGINES. BHP of each at RPM Steam pressure
Dia. of cylinders Stroke Dia. of crankshaft journals Pins Material of crankshaft
Is crankcase enclosed? If so, is the internal volume 20 cu. ft. or over? No. and total area of crankcase explosion relief devices fitted?
Are the bearings forced lubricated? No. and purpose of attached pumps
Is a Governor Fitted? none Identification Marks

ELECTRIC GENERATORS. Port and No. of Certificate for generators of 100 Kw. and over see El. FE Report

For generators under 100 Kw., has Makers' Certificate been obtained? Are Certificates attached?

The foregoing description is correct.

Manufacturer

Is this machinery duplicate of a previous case? yes If so, which? Howaldtswerke Standard Type of auxiliary engines

GENERAL REMARKS. State if the machinery has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters. State quality of materials and workmanship. Where existing machinery is submitted for classification the circumstances should be explained as fully as possible. These auxiliary turbines have been built under the Survey of ABS. The turbines and gearings have now been examined, checked with the Makers' plans, the materials identified with the ABS certificates, so far as practicable, and the sets examined under working conditions on completion. Full load, overload, full speed and overspeed running and governor trials have been completed with good results.

Survey Fee } see Rpt. 9
Expenses } No. 7313
Date when a/c rendered

Engineer Surveyor to Lloyd's Register

Declaration to be signed by Surveyor at fitting-out Port:— The above described machinery has been fitted on board the "TINA ONASSIS" at Hamburg in a proper manner and found satisfactory when tested on the (date) 6.3.59 under full working conditions.

Engineer Surveyor to Lloyd's Register

Rpt. 4c

Date of writing report 9.3.59

Received London

Port Hamburg

No.

Survey held at Hamburg

No. of visits -

First date -

Last date see Rpt. 9

FIRST ENTRY REPORT ON AUXILIARY INTERNAL COMBUSTION ENGINES

Name of Ship "TINA ONASSIS" Owners Palmas Transportation Co.
Ship Built at Hamburg by Howaldtswerke AG when 1953 Yard No. 885
Auxiliary Engines made at Munich by Süddeutsche Bremsen AG when 1953 Eng. Nos. 91460
Total No. of sets and description (including type name) 1 diesel alternator set, Type MWM - RHS 418 A

INTERNAL COMBUSTION RECIPROCATING ENGINES. No. of cylinders per engine 8 Dia. of cylinders 140 mm Stroke 180 mm
2 or 4 stroke cycle 4 Maximum BHP 200 at 1200 RPM Corresponding MIP 7.59 kg/cm2 Maximum pressure 58 kg/cm2
Fuel diesel Are cylinders arranged in Vee or other special formation? no If so, No. of
crankshafts per engine - Is engine of opposed piston type? no No. and type of mechanically driven scavenge pumps or blowers
per engine none No. of exhaust gas driven blowers or superchargers per engine none Is welded construction
used for: Bedplate? no Entablature? no Total internal volume of crankcase (if 20 cu. ft. or over) under 20 cu. ft. No. and total area of
crankcase explosion relief devices none Are flame guards or traps fitted? - Cooling medium for: Cylinders fresh water
Pistons not cooled No. of attached pumps: F.W. cooling 1 S.W. cooling - Lubricating oil 1 How is engine started? by 2
el. starters, supplied from batteries (attached fan air cooled fresh water cooler)

SHAFTING. Is a damper or detuner fitted? yes No. of main bearings 9 Are bearings of ball or roller type? no Distance between
inner edges of bearings in way of cranks 136 mm Crankshaft: solid Material of crankshaft Alloy-steel
minimum tensile strength 85 kg/mm2 Dia. of pins 110 mm Journals 115 mm Breadth of webs at mid throw 152 mm Axial
thickness 32 mm If shrunk, radial thickness around eyeholes solid Dia. of flywheel 590 mm Weight 103 kgs Are balance
weights fitted? yes Total weight 31.2 kg Rad. of gyration 106.5 mm Dia. of flywheel shaft none
Has each engine been tested in shop? on board How long at full power? 1 hour Was it tested with driven machinery attached? yes
governing tested and found satisfactory? yes Date of approval of torsional vibration characteristics (for engines of 150 BHP and over) -
Date of approval of shafting - Identification marks on shafting 53 ES - 676 AB - 653 - 18-3-53
Particulars of driven machinery 1 alternator, Maker: BBC, Type NEYU 166-5, No. M 34519, rating 125 KVA at 1200 rpm,
450 Volts, 160 Amps, 60 Hz.

AUXILIARY GAS TURBINES. BHP per set At RPM of output shaft. Open or closed cycle?
Arrangement of turbines. HP drives at RPM HP gas inlet temp. pressure
(A small diagram should be attached showing gas cycle) IP " " " " " "
LP " " " " " " " "
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? Are the turbines operated in conjunction with free piston gas generators?
Total No. of free piston gas generators Dia. of working pistons Dia. 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 in shop? How long at full power? Were they tested with driven machinery
attached? Particulars of gearing
Date of approval of plans Identification marks Particulars of driven machinery

ELECTRIC GENERATORS. Port and No. of Certificate for generators of 100 Kw. and over see El. FE Report
For generators under 100 Kw., has Makers' Certificate been obtained? Are Certificates attached?

The foregoing description is correct and the particulars are as approved for torsional vibration characteristics (strike out words not applicable)
Is this machinery duplicate of a previous case? yes If so, which? Südbremse- MWM- standard type of auxiliary engines

GENERAL REMARKS. State if the machinery has been constructed under special survey in accordance with the Rules, approved plans and Secretary's letters.
This emergency generator-diesel engine has been built under the Survey of ABS. The diesel engine has
been examined, so far as practicable, the main scantlings measured and the material stamp of the
crankshaft checked with the ABS certificate. The engine has been examined under working conditions
on completion and governor trials completed with good results.

Survey Fee
Expenses
Date when a/c rendered

Declaration to be signed by Surveyor at fitting-out Port:— The above described machinery has been fitted on board the S.S. "TINA ONASSIS"
at Hamburg in a proper manner and found satisfactory when tested on the (date) 6.3.59 under full working conditions.

LR-FAF-TB17-72 112



Rpt. 9a
Port of
Pumps
No. off and po
each
2 main sea oi
ER fwd. centre
2 aux. sea cir
ER aft, p & s
2 sea water s
Blr. R. p. fwd. j
1 cargo p. cor
Blr. R. p. fwd.
2 main conder
ER fwd. fwd. &
2 aux. condens
ER aft, p & s
2 cond. trans
Blr. R. aft, p
3 main feed v
Blr. R. p-centr
1 fire&gen. se
ER port cent
1 fire&butter
Blr. starbd. f
1 eng. room b
ER starbd. af
1 blr. room b
Blr. R. aft,
2 lub. oil se
ER aft. fwd.
1 lub. oil se
ER starbd. ce
2 oil fuel s
Blr. starbd.,
1 oil fuel t
Blr. starbd. f
2 LP feed wa
Blr. R. port, i
1 fire pump
steering gear
Forward pump
1 bilge-ball
fire pump
1 oil fuel t
Main pump ro
4 cargo oil p
turbines in l
1 ballast pur
turbine in E
4 stripping
pump room
Position of
Eng. room low
Eng. room low
Eng. room cas
2 hydrants 2
2 hydrants 2
CO2 plant for
2 - 50 ltr. f
7 portable (6
2 sand boxes
1 emergency d

Independent Pumps.

Pumps	Capacity in m ³ /h	How driven	Suction								Delivery								
			Bilge main	Bilge direct	Ballast main	Sea	Feed water	Condens. Extr.	Lub. oil	Oil fuel	Boiler feed	Feed water system	Main cond. cooling	Aux. cond. cooling	Oil fuel burners	Oil fuel tanks	Lub. oil	Fire main	Sea water cooling
2 main sea circ. pumps ER fwd. centre, p & s	2950	el.		X		X							X						
2 aux. sea circ. pumps ER aft, p & s	400	el.				X													
2 sea water service p/ps Blr. R. p. fwd. in- & outbd.	140	el.				X													
1 cargo p. cond. circ. p/p Blr. R. p. fwd.	700	el.				X													
2 main condensate pumps ER fwd. fwd. & aft	55	el.								X									
2 aux. condensate pumps ER aft, p & s	9	el.								X									
2 cond. transfer pumps Blr. R. aft, p & s	28	el.								X									
3 main feed water pumps Blr. R. p. centre-s	100	steam																	
1 fire & gen. service pump ER port centre	100	el.	X			X													
1 fire & butterworth pump Blr. starbd. fwd.	100	el.				X													
1 eng. room bilge pump ER starbd. aft	23	el.	X	X		X													
1 blr. room bilge pump Blr. R. aft, centre	23	steam	X	X		X													
2 lub. oil service pumps ER aft. fwd. & aft	140	el.								X									
1 lub. oil service pump ER starbd. centre	130	steam								X									
2 oil fuel service pumps Blr. starbd., fwd. & aft	8	el.																	
1 oil fuel transfer pump Blr. starbd. fwd.	51	el.																	
2 LP feed water pumps Blr. R. port, in- & outbd.	23	steam																	
1 fire pump steering gear room		diesel																	
Forward pump room																			
1 bilge-ballast- and fire pump	100	steam	bilge- and ballast system forward and fire main																
1 oil fuel transfer pump	65	steam																	
<u>Main pump room</u>																			
4 cargo oil pumps turbines in ER.	970	steam	Cargo oil system only																
1 ballast pump turbine in ER	970	steam	Cargo- and empty tank system																
4 stripping pumps in pump room	120	steam	Cargo oil stripping and for pump room bilge																

Electric Generator Engines

Position of each	Prime Mover	Maker	Cert.	Output KW	Volts	Amps
Eng. room lower 'tween deck p. aft	Imp. React. Turbine	Howaldtswerke	see Rpt. 4c	600	450	960
Eng. room lower 'tween deck starbd. aft	Imp. React. Turbine	AG., Hamburg		600	450	960
Eng. room casing, main deck level	4 SA Diesel Eng.	Südbremse, Munich	Cert. AB 53-ES-675x635	100	450	160

Fire extinguishing arrangements

- 2 hydrants 2 1/2", 2 hoses and 2 spray and jet nozzles in engine room
- 2 hydrants 2 1/2", 2 hoses and 2 spray and jet nozzles in boiler room
- CO₂ plant for engine- and boiler room with 103 receivers of 30 kg CO₂ each
- 2 - 50 ltr. foam extinguishers, 1 in boiler room, 1 in engine room, with hoses and nozzles
- 7 portable (6kg CO₂ or 10 ltr. foam) fire extinguishers (3 in boiler room, 5 in engine room)
- 2 sand boxes 0.5 m³ each, on firing platform
- 1 emergency diesel driven fire pump in steering gear room.