

# REPORT OF SURVEY FOR REPAIRS, &c., OF ENGINES AND BOILERS

(Received at London Office. 22 JUL 1943)

Date of writing Report... 16-7-43 When handed in at Local Office... 17-7-43 Port of GLASSGOW  
 No. in Survey held at GLASSGOW Date First Survey 1942 Sept. 17 Last Survey 10-7-43  
 Reg. Book 23068 on the Machinery of the ~~Wood, Iron or Steel~~ TWIN SC. M. V. EL ARGENTINO (No. of Visits 77)

Tonnage Gross 9501 Vessel built at GLASSGOW By whom FAIRFIELD CO. LD. Year. Month. 1928 4  
 Net 6023 Engines made at J. & S. By whom J. & S. When 1928  
 Nominal 1708 Boilers, when made (Main) (Donkey) 1928  
 No. of Main Boilers 3 Owners FURNESS WITNEY & CO. LD. Owners' Address (if not already recorded in Appendix to Register Book.)  
 No. of Donkey Boilers THREE Managers FURNESS HOULDER ARGENTINE LINES, LD. Port LONDON Voyage  
 Steam Pressure in Main Boilers 150 lb. If Surveyed Afloat or in Dry Dock BOTH GOVERNORS D.D. Particulars of Classification which must be inserted  
 in Donkey Boilers 125 lb. (State name of Dock.) 7 PLANTATION QUAY precisely as in Register Book & Supplements.)

Last Report No. Port DAMAGE

Particulars of Examination and Repairs (if any) DKG, T.S. P.T.C.S. DBS & REPAIRS +100A1 3.42  
 Periodical Surveys, when held, must be reported in detail and serially in the terms of the Rules. State clearly the cause of Repairs, if any, and, in detail, the nature and extent of Examinations and subsequent Repairs. Repairs on account of Damage (the cause of which must be stated) should be separated from Repairs due to other causes; and besides being detailed in the body of the report, should be briefly summarised at the end of the report. State also the dates and initials of any letters respecting this case. S.S. LON. N°2-36 3.39  
 D.B.S. 1.41  
 T.S. CL 2.40  
 ALLOYD'S RMC 3.42  
 Oil Engines

In damage cases where the Surveyor has not made a special damage report he is required to state whether he offered his services for this purpose, and why they were declined EXAMINED 3.42

Was a damage report made by anyone else? If so, by whom?

Did the Surveyor personally go inside each Main Boiler separately and make a thorough examination at this time?

" " Donkey " " Yes

If not, state for what reasons What parts of the Boilers could not be thus thoroughly examined?

What special means, in the absence of internal examination, were adopted by the Surveyor to assure himself of the thorough efficiency of those parts of each Boiler?

State latest date of internal examination of each boiler C.S. 9-11-42 P.T.C.S. 2-2-43 Present condition of funnel(s) Good  
 GENERALLY EXAM. INTERNALLY 6TB 28-6-43 P.T.C. 1-7-43

Did the Surveyor examine the Safety Valves of the Main Boilers? To what pressure were they afterwards adjusted under steam?

Did the Surveyor examine the Safety Valves of the Donkey Boilers? Yes To what pressure were they afterwards adjusted under steam? 125 lb./sq. inch

Did the Surveyor examine all the manholes, doors and their fastenings of the Main Boilers? and of the Donkey Boilers? Yes

Did the Surveyor examine the drain plugs of the Main Boilers? and of the Donkey Boilers?

Did the Surveyor examine all the mountings of the Main Boilers? and of the Donkey Boilers? Yes

Has the screw shaft now been drawn and examined? Yes Has it a continuous liner? Yes Is an approved oil retaining appliance fitted at the after end?

Has shaft now been changed? No If so, state reasons Has the shaft now fitted been previously used? Has it a continuous liner?

Is an approved oil retaining appliance fitted at the after end? State date of examination of Screw Shaft P.T.C.S. 19-6-43 State the wear down in the stern bush P.T.C.S. 19-6-43 Is electric light and/or power fitted? No If so, did the Surveyor examine the generators, motors, switchgear, cables and fuses? Yes

Has the insulation resistance of the generators, circuits and apparatus been tested and found to be not less than 100,000 ohms? Yes

If the Survey is not complete, state what arrangements have been made for its completion and what remains to be done To complete in accordance with C.S. requirements

"A" DAMAGE stated to have been sustained through heavy weather on various dates between the 31<sup>st</sup> December 1941 and the 17<sup>th</sup> February 1942, subsequently breaking the starboard main engine crankshaft on the 14<sup>th</sup> June 1942 whilst on a voyage from Montevideo to Freetown

"B" DAMAGE stated to have been sustained to No. 1 port forward generator engine on the 8<sup>th</sup> June 1942 whilst on voyage Montevideo to Freetown and

"C" DAMAGE stated to have been sustained to No. 3 starboard forward generator engine on the 23<sup>rd</sup> June 1942 whilst at Freetown West Africa

Now DONE - P.T.O.

General Observations, Opinion, and Recommendation: The machinery of this vessel is in

(State clearly what alteration, if any, is suggested to be made in the existing classification of the vessel's machinery in the Register Book, consequent upon this survey, and also any alteration required to be made in the records of the vessel's machinery, boilers, working pressures, &c.; thus, for example, BS 9.11, B&MS 9.11 & LMC 9.11 or LMC 140 lb., FD, &c.) CS 3.34

efficient condition and eligible in my opinion to remain as classed with fresh record of LMC CS with date on completion of survey as above T.S. CL 6.43 and D.B.S. 7.43 NOTATION Repairs to Stbd. aft. generator, renew H.C. piston of port main engine compressor and renew No. 6 stbd. cylinder jacket may now be deleted from SRL

Survey Fee (per Section 29) C.S. £ 4 - - DBS £ 157-10 -

Special Damage & Repair Fee (if any) (per Section 29.) £ 3-37-0 ELECT. REPAIR £ 7-0-0

Travelling expenses (if chargeable) ELECT. FEE £ 7-0-0

Assigned As now without oil cond. DBS 7.43

6.43

20 JUL 1943

Received by me, 19

Engineer Surveyor to Lloyd's Register of Shipping.

Is a Certificate required? If so, to be sent to



FOR DAMAGE:-

Port and starboard main engines - all cylinder covers, linets, pistons, piston rods valves and gearing, connecting rods, vertical shaft drives, crosshead pins and brasses, crankshafts with all brasses, entablatures, A frames, bedplates, thrusts and intermediate shafting, main scavenger pumps and compressors (in their entirety) also the compressor crankshafts and brasses, all frame studs and holding down bolts examined and placed in good order.

Crankshaft wear down and deflection readings checked and compared with previous readings. Steering engine cylinders, pistons, valves, crankshaft with brasses, worm, wormwheel, quadrant and pinion examined and placed in good order.

REPAIRS (1) STBD. MAIN ENGINE -

Main crankshaft found broken through the forward web of N°6 combined web and pin thrust. The fracture extended the full depth of web 12" and across web for a length of 38" into dowel pins.

Before removing the crankshaft to engine works, wear down readings were taken and compared with readings stated to have been taken in Feb'y 1941 as follows.

JULY 1941

COMP.	SCAV.	N°1	N°2	N°3	N°4	N°5	N°6	N°7	N°8	FORD. THRUST	AFT. THRUST
-	-	.055	.057	.065	.068	.074	.076	.059	.057	-	-

NOVEMBER 1942

COMP.	SCAV.	N°1	N°2	N°3	N°4	N°5	N°6	N°7	N°8	FORD. THRUST	AFT. THRUST
.035	.058	.064	.064	.060	.064	.060	.125	.171	.140	.044	.025

Port of Glasgow

Continuation of Report No. 67377 dated

10.7.43 on the

TWIN S.C.M.V. EL ARGENTINO

A DAMAGE REPAIRS CONT.

Engine was completely dismantled, crankshaft, compressor shaft and thrust shaft removed to engine works. N°6 crank throw removed and remainder of shafting tested on lathe. When the forward web of N°6 crank throw was removed from N°7 journal, this journal was found galled and cracked in way of dowel pin holes necessitating the renewal of N°7 journal. The pin section of N°5 crank throw was found cracked circumferentially near fillet of forward web, this combined web and pin section was also renewed. On removal of N°5 forward web from N°6 journal, this journal was also found cracked in way of dowel pin hole and therefore renewed.

The new crank throw intended for N°5 engine was found after machining to be cracked in way of the pin section. The crack extending from the fillet along the surface towards the centre of the pin. A replace forging was supplied, machined and fitted.

All remaining journals which were etched on surface were skimmed up, further examined and found in good order. All the coupling faces were also skimmed up in lathe.

N°6, 7 & 8 main bearing bottom shells were found fractured and fretted. The bedplate housing in way of these shells were also found fretted to a corresponding depth of .0304. making a total depth of .060.

The bedplate housing in way of N°6, 7 & 8 shells were planed out to depth of frettage and new bottom main bearing shells fitted - one spare shell supplied. N°2 main bearing bottom shell which was stuck in housing was also renewed and remaining main bearings reinstalled.

All the connecting rod, piston rod, and piston flange faces, top and bottom end brasses adjacent to connecting rod faces were found fretted and all machined to depth of frettage.

N°1 cylinder after guide bar bolts renewed. N°1 top end bottom brasses reinstalled.



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37HMA(1) 101

A) DAMAGE REPAIRS

No 3 cylinder frame top landing face was found fretted at the forward front corner and four cylinder securing studs slack. The frame landing face has now been machined to depth of frettage and the 4 studs renewed.

All the connecting rod, piston rod and piston flange faces and top and bottom end brasses adjacent to connecting rod flange were found fretted, all now machined to depth of frettage.

No 1, 2 & 3 top and bottom brasses remetalled.

No 4 top end forward brasses remetalled. All "A" frame studs renewed and joint bolts renewed where necessary.

Shaft alignment checked and found satisfactory. New spare bottom main bearing shell supplied and spare top half remetalled.

STEERING ENGINE - 3 centre sections of quadrant pinion teeth renewed, pinion also renewed. Worm wheel rim turned to new position. Main bearing thrust faces remetalled. Control valve gear relined.

B. DAMAGE

No 1 port forward generator engine cylinders covers, liners, pistons, valves and gearing, crosshead pins and brasses, crankshaft with brasses, engine frame and bedplate examined and placed in good order. Compressor cylinders, covers, liners, pistons, top and bottom end pins and brasses also examined and found in good order.

REPAIRS - Crankshaft removed to engine works, tested in lathe and found bent. New crankshaft fitted and all brasses remetalled.

Existing plate patch on the after inboard side of engine frame was removed and a new plate patch fitted to take in base of frame and bedded to top of bedplate and now oil tight.

NOTE -

The above damage was caused through No 5 piston oil baffle plate headed bolts breaking. Temporary repairs as follows were stated carried out at Breckton. Spare piston, liner and connecting rod fitted to No 5 engine and frame repaired by plate patch.

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No 1, 3, & 6 bottom end top brasses remetalled. Crankshaft and vertical drive wheel renewed. All "A" frame studs renewed and frame joint bolts renewed where necessary. Crankshaft centre coupling bolt holes reamed out and new bolts fitted. 2nd last tunnel shaft coupling bolts found slack, holes now reamed out and new bolts fitted. Compressor crankshaft and thrust shaft main bearings remetalled and shaft alignment checked.

REPAIRS PORT MAIN ENGINE

Wear down readings taken at this time were compared with readings stated taken in April 1941.

APRIL 1941

COMP. SEAV.	Nº1	Nº2	Nº3	Nº4	Nº5	Nº6	Nº7	Nº8	FORD THRUST	AFT THRUST
-	.054	.058	.065	.076	.081	.076	.053	.056	-	-

DECEMBER 1942

COMP. SEAV.	Nº1	Nº2	Nº3	Nº4	Nº5	Nº6	Nº7	Nº8	FORD THRUST	AFT THRUST	
.029	.052	.083	.119	.134	.126	.116	.104	.098	.075	.040	.021

All the main bearing bottom shells were turned out. No 3 & 4 found fractured and together with remaining bottom shells and bed plate housings found fretted to a more or less degree. The crankshaft itself being etched on all journals.

The bedplate housings were all planed out and all bottom main bearing shells renewed.

The main crankshaft and compressor shaft were removed to the engine works and tested in lathe, no evidence of cracks or slackness could be found. All the journals were skimmed up and the existing top halves of main shaft bearings and both halves of compressor shaft main bearings remetalled.

The thrust shaft bottom bearings were also remetalled to suit alignment and 4 slack coupling bolts in the after thrust coupling renewed.

(See following sheet)



### FOR C DAMAGE.

N° 3 starboard forward generator engine found damaged beyond repair, crankshaft broken in way of N° 3 crank, N° 3 cylinder jacket, lower and piston broken and the connecting rod bent, main bearing top half cover broken, engine bedplate in way of N° 1, 2 & 3 crankshaft bearings broken in several places also securing studs broken and the engine frame cracked and broken in several places.

A new 5 cylinder Ruston and Hornsby generator engine size 5 has now been installed and the old generator rewound to suit the speed of the new engine.

### FOR DOCKING.

Vessel placed in dry dock, propellers, after end of stern keels, sea connections and outside fastenings examined and placed in good order. Both screw shafts drawn in examined and found good. Port and starboard stern bushes renewed.

All the blades of the port & starboard propellers were found thin - the 2 spare propellers have now been fitted and the old propellers returned to the store as spare.

### FOR CS.

Port and starboard after generator engines with compressors examined in their entirety. All starting air reservoirs and blast air bottles, port and stbd. independent feed pumps, boiler oil pressure pumps and pumping arrangement examined and placed in good order.

All main engine and generator engine compressor inter-coolers were cleaned and tested.

Minor repairs to generator and pumps effected.

### ADDITIONAL REPAIRS - WEARY TEAR

PORT MAIN ENG. - N° 4 cylinder cover cracked in way of port liner and piston renewed from spares; Main compressor H. P. stage liner and piston renewed.

(See following sheet)

### TWIN SC. M. V. EL. ARGENTINO

### REPAIRS WEARY TEAR CONT.

Port sewage pump guides reinstalled and cam shaft wheel from vertical drive renewed.

STBD. MAIN ENG. - N° 6 cylinder jacket and liner renewed N° 2 cylinder cover and N° 4 piston and crank renewed from spares.

Note: - Owner's request that all items opened up for damage be counted towards the continuous survey.

### FOR D.B.S.

All donkey boilers examined in their entirety and placed in good order. Oil fuel installation examined under working conditions and found satisfactory. Safety valves adjusted under steam to stated pressure.

### REPAIRS

PORT BAR. - All plain tubes renewed and two additional stay tubes fitted in 2<sup>nd</sup> top row where back tube plate showed slight buckling. 24 rivets where leaking in ogee ring at front of boiler now renewed.

Gusset stay angle bars found clear of combustion chamber and rivets securing same leaking. New angle bars fitted to stays and rivetted to C.C. top. Port table door giving access to combustion chamber found thin and buckled, now renewed also brickwork in way.

CENTRE BAR. - All plain tubes renewed and two additional stay tubes fitted in 2<sup>nd</sup> top row where back tube plate showed slight buckling. Rivets of gusset stay angle bars found leaking and bars clear of C.C. top. New angle bars now fitted. Boiler shell plate where attached to ogee ring at front of boiler found thin and rivet in way leaking. A section 25" x 12 1/2" was cropped and renewed, several rivets on either side of new plate were also renewed.

STBD. BAR. - All plain tubes renewed and 2 additional stay tubes fitted in 2<sup>nd</sup> top row where back tube plate buckled. Rivets of gusset stay angle bars found leaking and bars clear of C.C. top. New angle bars now fitted.



D.B.S. REPAIRS CONT'D.

On completion of boiler repairs all boilers were tested under hydraulic pressure 125 lb/sq. inch and found sound and tight.

Upon the completion of machinery repairs attended on board during dock trials and on full power trials and found all machinery in good working order.

NOTE - Stated repairs to stbd. after generator were completed at Buenos Aires and examined under working conditions at that port.

The repairs were again examined at this time and found in good order.

Electrical Installation:-

Electrical Repair "C" Damage.

The starboard forward generator was returned to the makers for rewinding, as a new driving engine was being installed. The speed of the existing engine was 300 R.P.M. new engine speed 500 R.P.M. The generator rating has been increased from 165 Kws at 300 R.P.M. to 175 Kws. at 500 R.P.M. The complete set was run under load conditions for 12 hours and was found to be satisfactory.

Now Done for L.M.C.

The electrical installation examined and tested under working conditions, circuit breakers, voltmeters and ammeters on main switchboard recalibrated, all engine room motors and starters overhauled, navigation lights overhauled, generators (3) overhauled and re-insulated. All circuits muzzes tested and found to be in order.

Noted

True 7.43

With special permission  
condition

29/7/43

