

Rpt. 9

Date of writing report 27.10.59.

Survey held at GLASGOW

Received London

No. of visits 45

Port GLASGOW

First date 29.6.59

Last date 22.9.59

112 NOV 1959

No. 90564

# REPORT OF PERIODICAL SURVEYS & REPAIRS OF MACHINERY

No. in R.B. 20297 S.S. 'MACHARDA'  
Owners Thos. & Jno Brocklebank Ltd. Managers - Gross tons 8117 Date of build 1938-3  
Engines made 1938 By D. Rowan & Co. Ltd., Glasgow Port of Registry Liverpool  
No. of Main Engines 1 No. of Screws 1 Type 3 steam turbines SR Geared to SC shaft.  
No. of Main Boilers 4 SB W.P. 250 lb SPT Records of Survey & Special Notations as per Register Book  
No. of Aux./Donkey Boilers - W.P. -  
Surveyed Afloat or in Dry Dock Both  
Nature of Survey TS, MBS, Dkg, & SRL Items  
Was Damage Report issued? - Int. Cert.? Yes.  
Last Report (For Head Office only)

Hull	Machinery
+ 100AL D.S. 4.58	+ L.M.C. E.S. 7.57
SS Gls. 4.58	M.B.S. 12.57
	T.S.C.L. 12.56
	S.P.S. 12.58
	OF. 3.38

The condition of any of the following items is to be described as "good" only when the part has been examined, found or placed in good condition, and is considered to be acceptable until the due date of the next Periodical Examination. Where it is considered that re-examination or repairs should be effected before the due date of the next Periodical Examination a distinguishing mark thus † should be inserted against the item and the circumstances and action recommended described fully under "defects and repairs". At part or complete Special Surveys those items which are not applicable to the ship should be cancelled with a black line; this need not be done when the machinery is on a continuous survey basis. When any part has been subjected to pressure test this should be stated. Engine parts when referred to by numbers should be counted from forward.

DOCKING Propellers Good Wear Down of Stern Bushes Rewooded † Oil Glands - Sea Connections Good  
Fastenings Good Has Screwshaft/Tubeshaft been drawn? Yes Date of Examination 15.8.59 Has Shaft been changed? No.  
Has Shaft now fitted been previously used? Yes Has Shaft now examined/fitted a continuous liner? Yes Undocked 3.9.59 Approved oil gland? No.

MAIN ENGINES (Recip. Steam or I.C.)

PORT

STARBOARD

1 Cyls., Covers, Pistons & Rods

2 Valves & Gears

3 Connecting Rods, Top Ends & Guides Side Centre

4 Crankpins & Bearings Side Centre

5 Journals & Bearings

MAIN ENGINE DRIVEN AIR COMPRESSORS

6 Cyls., Covers, Pistons & Rods

7 Connecting Rods & Top Ends

8 Crankpins & Bearings

9 Journals & Bearings

10 Coolers & Safety Devices

MAIN ENGINE DRIVEN SCAVENGE PUMPS

11 Cyls., Covers, Pistons & Rods

12 Connecting Rods & Top Ends

13 Crankpins & Bearings

14 Journals & Bearings

15 Levers

16 SCAVENGE BLOWERS

17 SUPERCHARGERS

MAIN TURBINES

18 Casings, Rotors, Blading, Bearings & Thrusts H.P. Good

19 EXHAUST STEAM TURBINES (WITH RECIP. ENGINES)

20 STEAM COMPRESSORS

21 CLUTCHES & HYDRAULIC COUPLINGS

22 REDUCTION GEARING

23 THRUST BLOCKS, SHAFTS & BEARINGS

24 INTERMEDIATE SHAFTS & BEARINGS

25 HOLDING DOWN BOLTS & CHOCKS

26 CONDENSERS (MAIN & AUX.)

27 STEAM RE-HEATERS

28 DE-SUPERHEATERS

29 STOP & MANOEUVRING VALVES

30 MAIN ENGINE DRIVEN PUMPS

31 CRANKCASE DOORS & EXPLOSION RELIEF DEVICES

Have Main Engines been tested working and manoeuvring?

OPINION OF MACHINERY AND RECOMMENDATIONS The machinery of this vessel so far as now seen is in good condition and eligible, in our opinion, to remain as classed with fresh records of T.S.C.L. 9/59 now and M.B.S. 9/59 on completion of the survey subject to the aft end of the stern tube (mintex) bearing being specially examined next dry docking but without special condition regarding stard. and ford. boiler, stard. aft boiler, main condenser and H.P. turbine.

Date of Committee GLASGOW 10 NOV 1959

Decision As now, Subject Four

30m. 6.55. T. (MADE AND PRINTED IN ENGLAND.)

Noted for Header

G. Boyter Engineer Surveyor to Lloyd's Register of Shipping

Lloyd's Register Foundation

003698-003705-0286



32 Essential Independent Pumps (Identify by position).....

33 Bilge, Ballast & Oil Fuel Suction Lines, Fittings & Controls.....

34 Have the remaining Piping Arrangements & Fittings in the machinery space been examined as considered necessary?.....

35 Fresh Water Coolers..... 36 Lub. Oil Coolers..... 37 Heaters (state service).....

38 Independent Air Compressors, Coolers & Safety Devices..... 39 Auxiliary.....

39 Air Receivers & Safety devices—Main.....

41 Oil Fuel Tanks (Not forming part of hull structure).....

42 Evaporators..... 43 Have Evaporator Safety Valves been tested under steam? Yes

44 Steering Machinery..... 45 Windlass..... 46 Fire Extinguishing Arrangements.....

#### AUXILIARY ENGINES (Identify by position).....

ELECTRICAL EQUIPMENT		AUXILIARY EQUIPMENT	
PROPULSION	PORT	STARBOARD	
Generators.....		Generators & Governors.....	
Exciters.....		Motors.....	
Air Coolers.....		Switchboards & Fittings.....	
Motors.....		Circuit Breakers.....	
Air Coolers.....		Cables.....	
Control Gear, Cables, etc.....		Insulation Resistance.....	
Insulation Resistance.....		Steering Gear Generators and Motors.....	
Insulating Oil Test.....		Navigation Light Indicators.....	
Overspeed Governors.....			
Magnetic Couplings.....			
Air Gap.....			

BOILERS OPENED UP & EXAMINED (Identify by position and state latest date of internal examination of each boiler)

MAIN Stard, Ford, Stard, aft & Port Aft, Port Ford, AUXILIARY, DONKEY or PRESS  
9.59 all good.

Superheaters Stard, Ford, Stard, aft & Port Aft, Port Ford - Good

Safety Valves S.F., S.A. & P.A. P.F. Good

Mountings, Doors & Fastenings S.F., S.A. & P.A. P.F. Good

Safety Valves Adjusted to Sat. S.F., S.A. & P.A. 250 lbs.

Spt. S.F., S.A. & P.A. 250 lbs.

Boiler Securing Arrangements S.F., S.A. & P.A. P.F. Good

Main Economisers Exhaust Gas Heated Economisers

Steam Heated Steam Generators Steam Generator Safety Valves Adjusted to

Were Oil Burning System & Remote Controls examined working in accordance with Rules? Yes Forced Circulating Pumps

Have Saturated Steam Pipes in cylindrical boiler smoke boxes been examined as required by Rules? Funnel Good

#### EXAMINATION & TESTING OF STEAM PIPES (State material)

Main Auxiliary (over 3 in. bore)

Were Copper Pipes annealed? Have Saturated Pipes in cylindrical boiler smoke boxes been tested?

PARTICULARS OF DEFECTS & REPAIRS, ETC. (Damage repairs should be detailed separate from wear and tear repairs; state what action has been taken regarding items which are subjects of class)

Main Boilers - The following major and minor repairs were carried out and completed in accordance with the Society's requirements and to our satisfactory.

Approved and tested material being used throughout.

1. Stard. Aft Boiler - All four furnaces cut out and renewed. 42 c.c. stays padded by welding.

67 c.c. stays renewed.

4 c.c. corner plate patches fitted by electric welding

8 c.c. wrapper " " " " "

50 stay tubes renewed.

42 plain tubes renewed.

8 breast stays renewed.

All tube and breast stay holes built up by electric welding on water side. Stay tube and breast stay holes retapped.

M.B.S. Survey fees	£40. - -
T.S.	7. - -
M. Blr. Repairs.	195. - -
Turbine Repairs.	5. 5. -
Damage fee	
Expenses...	4. 10. -

Date when rendered 11 0 NOV 1959

Rpt. 9a

Port of

GLASGOW

Continuation of Report No. 90564. dated

27.10.59.

on the

SS. "MACHARDA"

#### STARD. FWD. BOILER.

All four furnaces cut out and renewed.

48 c.c. stays padded by E. Welding

33 c.c. stays renewed.

4 wrapper slate patches fitted

72 stay tubes renewed.

53 plain tubes renewed.

8 breast stays renewed

One cast steel doubler rivetted to boiler shell in way of Hydro-Kineter valve.

All tube and breast stay holes built up by E.W. and retapped.

#### PORT AFT BOILER -

99 c.c. stays padded by E.W.

50 c.c. stays renewed.

6 c.c. corner plate patches.

97 c.c. rivets renewed.

39 stay tubes renewed.

79 plain tubes renewed.

2 breast stays renewed.

3 girders refitted outboard high fire C.C. wastage on all furnace crowns built up by E.W.

One cast steel doubler pad fitted to shell in way of Hydro-Kineter valve (See below \*).

All breast and stay tube holes built up by E.W. and retapped.

#### PORT FORD. BOILER.

110 c.c. stays renewed

32 stay tubes renewed.

20 plain tubes renewed.

1 breast stay renewed.

1 c.c. crown plate patch fitted.

5 c.c. corner plate patches fitted.

5 c.c. wrapper plate patches fitted.

One cast steel doubler pad fitted to shell in way of Hydro-Kineter valve (See below \*).

All breast and stay tube holes built up by E.W. and retapped.

Some C.C. areas built up by E.W.

Some furnace crown areas built up by E.W. (for completion at Birkenhead) to which port the ship is proceeding direct.

#### BOILERS GENERAL.

Stard. ford. stard. aft and port aft boilers were hydraulically press. tested to above working pressure and found upon examination to be sound and satisfactory throughout.

#### \* Cast Steel Doubler Pads.

Shell plate in way of Hydro-Kineter valves on all boilers were magna-flux crack detected and fractures became evident on Port aft, port ford. and Star. ford. boilers travelling from the bores towards, but not extending beyond, the stud holes. The fractures were bored out and approved cast steel doubler pads rivetted to the shells. The stard. aft boiler shell was found, so far as now seen, to be free from defect at this point.

All/

10m.53. T. (MADE AND PRINTED IN ENGLAND.)

11 0 NOV 1959

10 NOV 1959

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All material used in carrying out the above repairs was of tested to approved type and the workmanship effected to our entire satisfaction.

Port Ford. Boiler

For completion M.B.S. 9/59 the under stated repairs remain to be carried out at Birkenhead and the safety valves adjusted on the boiler.

No.1 Inboard High Fire.

7 stay holes to retap and tubes to fit.

4 plain tubes to fit and expand.

12 rivet holes on crown plate to ream, countersink and rerivet.

7-2" c.c. stay holes through patch on back plate to tap (one hole to drill).

3-1.7/8" c.c. stay ends on shell to burn out and holes to drill and tap.

9-1.7/8" girder stays on crown plate to mark off, drill, tap and stays to supply.

No.2 Inboard Low Fire.

9 Stay holes to retap and tubes to fit.

6 Plain tubes to fit.

15 rivet holes on crown plate to ream, countersink and rerivet.

18-1.7/8" c.c. stay holes to drill and tap to high fire.

No.3 Outboard Low Fire.

10 stay holes to retap and tubes to fit.

6 plain tubes to fit.

9 rivet holes on crown plate to ream, countersink and rerivet.

16-2" c.c. stay ends on back plate to burn out, holes to drill and tap into new patches.

1 - 1.3/4" c.c. stay through back plate to drill and tap.

3 - stays to cone pad on back plate.

3 - stays to cone pad on wrapper plate.

(nuts are already cut off from these stays).

36 - 1.7/8" c.c. stays to drill and tap on new wrapper plate in inboard low fire.

No.4 Outboard High Fire.

6 stay holes to retap and tubes to fit.

4 plain tubes to fit.

16 - 1.7/8" c.c. stay holes are drilled, but still to tap to new wrapper plate on outboard low fire.

31 rivet holes on crown plate to ream, countersink and rerivet.

15 - 1.7/8" c.c. stay ends on shell to burn out and holes to drill and tap

(3 top rows and 2 bottom rows).

16 - 1.3/4" c.c. stay ends through back plate to burn out, holes to drill and tap.

All girder stays on crown plates to fit (4 c.c.).

One breast stay to cut out and renew.

General

7 Sugden heater tubes to cut out and renew, casings to replace with four bolts in

each/

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S. J. J. J. J.



each panel. All doors on header cleaned and rejointed except where tubes are to be cut out.

Furnace fronts and air casing plates to refit (4 furnaces).

2 internal feed pipes to rejoin.

#### Welding.

Inboard high furnace corrugations to be built up

Wastage on outboard high box to build up where margin tubes are cut out.

Wastage on outboard low box to build up on starbd. side where tubes are cut out.

All margin tube plates and holes to grind up and dress.

Wastage at top of wrapper plate of outboard low fire where stay is cut out to be built up on water side.

6 c.c. stays to cone pad in outboard low box, nuts already cut off.

Dressing of crown plates not complete.

#### Main H.P. Turbine.

Due to deep erosion and wastage between the rows of fixed blading the casing was rebored, increasing the internal diameter by 3/16".

All blading on casing and rotor has been renewed with suitable blades to accommodate increased casing bore. Casing longitudinal joint built up and re bedded. Rotor oil and steam glands overhauled and new dummy piston fitted.

The casing dummy was rebored and refinned.

The rotor bearings, governor and thrust were repositioned 3/32" forward to suit the reserrating of blade grooves.

On completion of the above repairs the rotor was dynamically balanced and found satisfactory.

S.R.L. Items - Main Condenser Stard. water door examined in way of metalock repair and found to be sound and secure and it is therefore recommended that this subject of class be now deleted from the S.R.L.

H.P. Turbine considering the above satisfactory reconditioning of this unit it is now submitted that the special condition against same be now deleted from the S.R.L.

Main Boilers. Considering the satisfactory repairs now carried out it is submitted that the special conditions regarding the renewal of all furnaces in the ford. star. boiler and the special examination of the aft star. boiler by 6/59 be now deleted from the S.R.L.

Stern Tube. As the lower half of the stern tube has been lined with Mintex M.6 at this time it is recommended that in accordance with the circular to this effect, the after end of the stern bush and tail shaft wear down be specially examined and noted at next dry docking.

Tailshaft. Liner skimmed true to suit new Mintex bearing.

Shipside boiler blowdown valve overhauled while in dry dock. Other minor wear and tear repairs carried out.