

Rpt. 9 9 DEC 1958 110 DEC 1958  
Date of writing report 5.12.58. Received London 110 DEC 1958 Port Newcastle-on-Tyne No. 115746  
Survey held at South Shields No. of visits 27 First date 13.10.58. Last date 28.11.58.

REPORT OF PERIODICAL SURVEYS & REPAIRS OF MACHINERY

No. in R.B. 56779 Name ~~SS~~ "CITY OF CARLISLE" Gross tons 9913 Date of build 1946 2  
Owners Ellerman & Bucknall S.S.Co.Ltd. Managers OWNERS Port of Registry London  
Engines made 1946 2 By Barclay Curle & Co. Ltd. Type 3 Stm.Turbines D.R.geared to Sc.shaft  
No. of Main Engines 1 No. of Screws 460 lb/sq" 1  
No. of Main Boilers 2 W.T.B. W.P. 450 lb/sq" 1  
No. of ~~ANK/DECK~~ Boilers 1 sg. W.P. 100lb/sq." 1  
Surveyed Afloat or in Dry Dock Both  
Nature of Survey Comp.ES,MBS,TS,sps.&DS.  
Was Damage Report issued? No Int. Cert.? Yes  
Last Report (For Head Office only)

Records of Survey & Special Notations as per Register Book

Hull	Machinery
*100A1 with fbd.	*LMC
Carrying cargo oil F.P.	Eng. 3,54
above 150°F in MT	BS.M. 6,57
SS. 3,54	d. 7,58
DS. 3,58	sg. 7,58
	TS.CL. 9,56
	sps. 3,54

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 Close fit Oil Glands ~~XXXXXX~~ Sea Connections Good  
Fastenings Good Has Screwshaft ~~Tube~~ been drawn? Yes Date of Examination 24.10.58. Has Shaft been changed? No  
Has Shaft now fitted been previously used? - Has Shaft now examined ~~At~~ continuous liner? Yes Approved oil gland? No  
MAIN ENGINES ~~(XXXXXX)~~ PORT X STARBOARD X  
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 2 Feed Filters - Good  
12 Connecting Rods & Top Ends Float Tank & Cascade Filter - Good  
13 Crankpins & Bearings Sliding Feet - Good  
14 Journals & Bearings  
15 Levers  
~~SCAVENGE BLOWERS~~  
16 ~~SUPERCHARGERS~~  
MAIN TURBINES  
18 Casings, Rotors, Blading, Bearings & Thrusts H.P., I.P., & L.P. - Good  
~~EXHAUST STEAM TURBINES (WITH RECIPI ENGINES)~~  
20 ~~STEAM COMPRESSORS~~  
21 ~~CLUTCHES & HYDRAULIC COUPLINGS~~  
22 REDUCTION GEARING Good  
23 THRUST BLOCKS, SHAFTS & BEARINGS Good  
24 INTERMEDIATE SHAFTS & BEARINGS Good  
25 HOLDING DOWN BOLTS & CHOCKS Good  
26 CONDENSERS (MAIN & AUX.) Good  
27 ~~STEAM RE-HEATERS~~  
28 DE-SUPERHEATERS Good  
29 STOP & MANOEUVRING VALVES Good  
30 ~~MAIN ENGINE DRIVEN PUMPS~~  
31 ~~CRANKCASE DOORS & EXPLOSION RELIEF DEVICES~~

OPINION OF MACHINERY AND RECOMMENDATIONS Have Main Engines been tested working and manoeuvring? Yes  
The machinery of this vessel, so far as now seen, is in safe working condition, eligible in our opinion to remain as classed with fresh record of ES. 6,58 and MBS.9,58 as previously recommended, TS(CL) 10,58 and sps. 11,58.



9  
SHEET 2.

Essential Independent Pumps (Identify by position) Main circ. pump, 2 main feed pumps, bilge pump, ballast pump, Gen. Service pump, L.O. Pump, Diesel F.O. Trans. pump, heavy oil transfer pump, Ford & Aft diesel generator circ. pumps - all good.

Bilge, Ballast & Oil Fuel Suction Lines, Fittings & Controls Good  
Float Tank & Cascade Filter - Good

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

Fresh Water Coolers Drain Cooler - Good, CENTRE AUX. COOLER, 2 Feed & 2 Oil Fuel - Good  
Independent Air Compressors, Coolers & Safety Devices 1 driven by emergency generator & 1 driven by Diesel Engine - Good  
Air Receiver 2 - Good  
Oil Fuel Tanks (Not forming part of hull structure) Good  
Evaporators Good  
Have Evaporator Safety Valves been tested under steam? Yes  
Steering Machinery Good  
Windlass Good  
Fire Extinguishing Arrangements Good

AUXILIARY ENGINES (Identify by position) Emergency generator engine & Aux. Compressor engine - Good  
2 Forced draught fans - good

PROPULSION	PORT	STARBOARD	ELECTRICAL EQUIPMENT	AUXILIARY EQUIPMENT
a Generators			Generators & Governors	Good
b Exciters				
c Air Coolers			Motors	Good
d Motors			Switchboards & Fittings	Good
e Air Coolers			Circuit Breakers	Good
f Control Gear, Cables, etc.			Cables	Good
g Insulation Resistance			Insulation Resistance	Good
h Insulating Oil Test			Steering Gear Motors	Good
i Overspeed Governors			Navigation Light Indicators	Good
j Magnetic Couplings				
k Air Gap				

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

MAIN Starboard - Good

AUXILIARY, DONKEY or PRESS

Superheaters Starboard - Good

Safety Valves Starboard - Good

Mountings, Doors & Fastenings Starboard - Good

Safety Valves Adjusted to Sat. Port & Stbd. 460 lb/sq.in.  
Spt. Port & Stbd. 450 lb/sq.in.

Boiler Securing Arrangements Starboard - Good

Main Economiser

Steam Heated Steam Generators

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

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 (Steel) tested - Good

Auxiliary (over 3 in. bore) (steel) tested - Good

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)

#### WEAR & TEAR REPAIRS.

Starboard main boiler. Furnace brickwork repaired.

2 superheater tubes renewed (plugged) Certificate attached.

Main Circulating Pump. Sealing rings renewed and impeller machined (excessive clearance)

Flexible couplings. 1st Reduction. Teeth Clearances (Backlash):-

H.P. .063" 3/8" Axial movement.

I.P. .040" 3/8" Axial movement

L.P. .042" 3/8" Axial movement.

H.P. & I.P. Turbines. End Tightening gear for rotor close contact running.

I.P. Turbine :-

Rotor in contact with blading. Finger plate reading: .104"

Thrust carriage hard ford. in full ahead position and rotor) Finger plate reading: .116"

hard ford. on ford. thrust pads)

Thrust carriage hard ford. in full ahead position) Finger plate .127"

and rotor hard aft on aft (ahead) thrust pads. )Thrust oil clearance

Survey fees Part ES. £56. 0. 0.  
Part MBS. £14. 0. 0.  
Elec. £35. 0. 0.  
TS. £7. 0. 0.  
Rprs. £20. 0. 0.

Expenses...

- 9 DEC 1958

Date when A/c rendered...

Cont. Sheet

Port of NEWCASTLE-ON-TYNE.

Continuation of Ship/Mchy. Report No.

Continuation of Report No.

115476

dated 5.12.58.

on the S.S./M.S. "CITY OF CARLISLE"

#### WEAR & TEAR REPAIRS (CONTINUED)

Thrust carriage hard aft in manoeuvring position

Rotor hard ford. on ford. thrust pads. Finger plate .142"

Rotor hard aft on aft thrust pads. Finger plate .154"

Total travel of thrust carriagee from running to manoeuvring positions .028"

Min. Blade Shroud Clearance .012" on ford.pads.

Min. Blade Shroud Clearance .023 on aft ahead pads.

H.P.TURBINE. Aft modifying end tightening gear.

Rotor in contact with blading and axial dummy. Finger plate .140"

Thrust carriage hard ford. rotor hard on ford. thrust pads: .144"

Thrust carriage hard ford. rotor hard on aft and pads: .153"

Thrust carriage hard aft (max.pos.) Rotor hard on ford. pads: .172"

Thrust carriage hard aft (max.pos.) Rotor hard on aft and pads: .181"

Total travel of thrust carriage from running to manoeuvring positions .028"

Min. axial dummy clearance .004. Thrust carriage hard ford. & rotor on ford.pads.

Min.axial dummy clearance .013" Thrust carriage hard ford. & rotor on aft and pads (Running pos.)

H.P.ROTOR: All labyrinth machined out of ford. gland shaft, new packing cut in 1" lengths, serrated and fitted in rotor and caulked in rotor, ford. gland machined, rotor journals and shafts polished and coupling claw teeth dressed up by hand filing and honing.

H.P.FORD.GLAND: Labyrinth packing machined out, new labyrinth packing cut in 1" lengths, serrated, fitted and caulked in, top and bottom gland sleeves machined.

H.P. CYLINDER AXIAL DUMMY: (30 rows) Top and bottom halves, first 14 rows from ford. to aft, and aftermost row of labyrinth packing machined out of dummies, new packing cut in 1 1/2" lengths, serrated, fitted and caulked in dummy cylinder.

Complete dummy machined.

I.P.ROTOR: All existing labyrinth packing machined out of ahead dummy piston and aft rotor gland, 1 row (aftermost) machined out of dividing gland between H.P. astern and I.P. ahead. New packing cut in 1" and 1 1/2" lengths, serrated, fitted and caulked in. Rotor machined in way of new labyrinth packing, journals and shafts polished. Coupling claw filed and honed by hand.

I.P.Rotor dynamically balanced - correct.

H.P. Rotor dynamically balance and corrected by drilling one 7/8" dia. hole x 1 1/8" deep on 5.875 radius = 3.188 ozs. Drilled at ford. end and diametrically opposite original balance hole.

Ahead and astern blading dressed on both H.P. and I.P. Rotors and erosion on H.P. astern velocity whl. blades noted.

#### WORK DONE ON BOARD SHIP

Slight erosion on last 4 expansions of L.P. ahead rotor blading and on L.P. astern velocity whl.blading noted.

All wear down readings checked on 1st and 2nd reduction gearing bearings, and oil clearances of bearings checked by way of leads, and by checking respective bearings over mandrels.

(CONTINUED SHEET 3)

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on the S.S./M.S. "CITY OF CARLISLE"

WEAR & TEAR REPAIRS (CONTINUED)DIAMETERS OF MANDRELS:-

Primary whl. and secondary pinion shafts 11.015"

L.P. primary pinion shafts 7.015"

H.P. &amp; L.P. Primary pinion shafts 5.515"

Oil clearances by these methods satisfactory, discrepancies in existing and initial wear down readings noted.

H.P. & I.P. TURBINES:- All gland and dummy clearances checked and adjusted on both turbines.

Wear down readings checked on bearings, thrust oil clearances and travel of rotors checked.

End tightening gear for rotor close contact running checked and rectified, see separate sheet.

Modifications to rotor close contact end tightening gear.

I.P. - Gear wheel with cam attached, which operates governor compensator arm,  $1\frac{1}{2}$ " extension added to cam at max.contact end.  $1\frac{1}{2}$ " add to cam at min.close contact end. Gear wheel turning too far in either direction and governor compensator missing cam at each end.

H.P. - 1 -  $1\frac{1}{2}$ " and  $1\frac{1}{2}$ " extensions added to gear wheel cam, similar to I.P. and for same reasons.

Thrust carriage filed to remove .020" malalignment to housing and rotor, as a result of this condition, carriage had only .011" initial travel, design travel .030".

Brass liners at ford. end of carriage made equal thickness in top and bottom halves by the addition of brass shims.

Spigot and faucet in top and bottom carriages welded to ensure close fitting and remove  $1/32$ " end play, this was causing unequal travel on top and bottom halves of carriages and unequal drive on gears and worm.

Thrust keep drilled and fitted with  $3/4$ " dia. dowels to prevent ford. and aft movement on keys, thrust keep keys being approx. .009" less in width than keyways. Ford.bearing keep fitted with new  $5/8$ " dia. dowels to prevent end play.

After completing above work, total ford. and aft movement on carriage .028".

Thickness of liners on ford. end of thrust carriage

Top Half: .373 .005" shim added.

Bottom half. Starboard side: .372 .005 shim added.

Bottom half. Port side .379 - nothing added.

A copy of turbine and bearing clearances and alignments is attached.

THRUST BLOCK. Seating renewed and new cast iron distance piece fitted on chocks between block and seating. See approved plan attached to hull report.

Alignment of shafting and chocking examined and found satisfactory.

BALLAST PUMP. Sealing rings renewed (excessive clearance)

FIRE & BILGE PUMP (Port side). Sealing rings renewed (excessive clearance)

FUEL TRANSFER PUMP. Motor and pump coupling flange bolt holes found elongated.

Built up by electric welding, re-drilled and subsequently annealed.

GENERAL SERVICE PUMP. Casing cover (cast brass) found eroded in way of centre sealing



on the S.S. ~~AKA~~ "CITY OF CARLISLE"WEAR & TEAR REPAIRS. (CONTINUED)GENERAL SERVICE PUMP (Continued)

ring and built up by electric welding. Double impellers, impeller shaft and sealing rings renewed.

FOR'D. & AFT L.O. PUMPS. Ball races renewed (worn)

FOR'D DIESEL GENERATOR S.W. CIRCULATING PUMP. Impeller, impeller shaft and sealing rings renewed (worn).

SEA CONNECTIONS. Main overboard discharge valve chest built up by electric welding where corroded adjacent to seat. Repair examined and considered satisfactory. Valve chest tested hydrostatically in place and found satisfactory.

BALLAST INJECTION VALVE. Valve chest found corroded. New fabricated steel valve fitted. Stamped LLOYDS NWC. Tested 70 lb. H.P. 31.10.58.

TAILSHAFT. Liner machined (grooved in way of packing preventing entrance of correct size of packing). Journal in way of aft plummer block machined (slightly pitted).

NEW OILY WATER SEPARATOR fitted in tween decks, markings -

LLOYDS TEST Coils 400 lb. Shell 40 lb. 20.5.58.

Makers (COMYN) Serial No. 972

Diagrammatical arrangement sketch attached. Tested working and proved satisfactory.

New gunmetal ship's side discharge valve stamped LLOYDS LIV.27.8.58. fitted.

MAIN BOILER LOW LEVEL ALARMS. New Stephen low level alarms have been fitted to the port and starboard main boilers. It was stated by the Owners' representative that the existing alarms had been unsatisfactory in service.

A bracket has been secured to each boiler steam drum by 6 -  $\frac{3}{4}$ " dia. studs, screwed into holes drilled in the shell but not penetrating.

Fittings:- 2 lengths 1" bore S.D. steel piping stamped "LLOYDS TEST NWC.T.P.920 lb. H.P. 10.11.58."

2 valves stamped LLOYDS TEST W.H.S. T.P. 920 lb. N/C. - Certificate attached.

2 tee pieces stamped LLOYDS TEST T.P. 920 lb. NWC.

Alarms tested working and found satisfactory.

It is noted that the port extraction pump (S.R.L. Item) was dealt with in London in September, 1958.

*H. Sollock.*



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