

*s/s 'City of Durban'*  
*Hull Report No. 33135*

of HULL,

1st. December, 1921.

JOSEPH HARBOTTLE,

Messrs. Earle's S.E. & Eng. Co., Ltd., survey the geared turbine machinery of the S.S. "CITY OF DURBAN" on Tuesday the 22nd. March 1921 and subsequent dates through damage to the machinery while running when the vessel was moored to the Quay Wall, King George Dock, Hull, on the 21st. March 1921. The cause of the damage is not known.

On examination on board vessel - FOUND:- Gear case broken; teeth of main gear wheel scored and cut; teeth of L.P. primary pinion torn and cut away: Keep and bolts for primary pinion bearings broken, blades of L.P. turbine stripped.

RECOMMENDED:- All turbines complete with gear wheels and casings to be removed to the shops for further examination; All pipes, gratings, and other fittings to be removed if necessary to facilitate the lifting out of turbines and gears.

On examination in the shops FOUND in addition to the above damage condenser tubes started and damaged. M.P. ahead and H.P. astern motor blades started and bent. L.P. Ford bearing not true with cylinder bore, and bore distorted.



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RECOMMENDED:- Gear case; all broken parts to be renewed, and replaced as necessary; All gear case bearings to be remetalled; Condenser to be taken apart from L.P. cylinder; all tubes to be taken out and examined, about fifty tubes to be renewed, the condenser to be afterwards tested by hydraulic pressure to 30 lbs. per square inch and reglanted to L.P. cylinder;

L.P. Turbine; All cylinder blades and packings to be cleared and the cylinder rebored, and tested by hydraulic pressure to 30 pounds per square inch.

L.P. cylinder to be completely rebladed. All new blades and packing sections both for rotors and cylinders to be cut and annealed, caulked, and brazed with silver solder, steamed for twenty-four hours and then recaulked.

L.P. rotor to be tried in lathe for truth, ahead and astern blading to be renewed, fifty impulse blades to be replaced with two sets of jointers, three blades per joint with necessary shrouding; All bearings to be remetalled and L.P. rotor to be rebedded.

Bridge gauge readings to be taken and retained.

Flexible coupling, claw to be refitted together with two new keys, coupling sleeve bolt holes re-reamed and new bolts supplied with necessary spares for spare gear outfit. Spare bearings to be refitted in place.

L.P. forward bearing end to be tried for truth with cylinder bore and, if necessary, to be reset true with cylinder bore.

M.P. ahead and H.P. Astern Rotor.

Ahead reaction blades to be recaulked, set true and rebrazed with silver solder.

Fifty H.P. ahead and fifty H.P. astern impulse blades with two sets of jointers and the necessary shrouding to be renewed. Flexible coupling bolt holes to be re-reamed and new bolts to be fitted with necessary spares for spare gear outfit.



GEAR WHEELS.

Main gear wheel to be recut. Port and Starboard second reduction pinions to have new shrouds fitted and teeth to be recut.

L.P. Primary pinion to be renewed. H.P. cylinder to be relined with M.P. and joint remade; new bolts to be fitted after joint holes are re-reamed. Bearings to be remetalled. H.P. and M.P. rotors to be tried in lathe, blades cleaned up at tips, straightened up where necessary and rebrazed with silver solder. H.P.; M.P.; & L.P. rotors gear wheels and shafts to be bedded in place, teeth to be meshed true and bridge gauges made and kept for record. All spare bearings to be tried in place and to be altered or renewed as necessary. The turbines together with gearing to be erected in the shop steam, afterwards to be taken adrift, examined and, if found in order to be again fitted in the vessel. All holding down bolts & packing pieces to be refitted and the shafting made true as before. The cylinders and steam pipes to be re-lagged as required. All fittings removed to execute the repairs to be replaced as originally, anything damaged by removal to be made good. The materials employed in the repairs to be the same as used in the original construction and of not less dimensions. The new or disturbed work to be painted, polished or varnished as originally as found requisite to make good the damage now sustained. Any further damage that may be disclosed on executing the repairs now enumerated to be made good as expedient. The machinery to be restored as far as practicable to the same condition, as before the alleged casualty occurred.

Fee: -£94 . 10 . 0  
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