

(No. 114.)



1885.

PARLIAMENT OF TASMANIA.

TORPEDO BOAT.

Return to an Order of the House of Assembly. (Mr. Crowther.)

Laid upon the Table by the Treasurer, September 15, 1885, and ordered by the House of Assembly to be printed.



(1.)

Downing-street, London, 5th February, 1884.

SIR,

Requisition 1987.

WITH reference to previous correspondence on the subject of the Torpedo Boat ordered for the Government of Tasmania, I have the honor to state that the official trial of the boat took place, under the supervision of two Admiralty Surveyors, on the 24th ultimo, with the following satisfactory result:—

Six runs were made on the measured mile at an average speed of 17·221 knots. During the trial the engines and boiler worked in a most satisfactory manner, steam being readily generated with an air pressure varying from 3 to 3½ inches.

The machinery is certified to be good, and fit for the service intended.

After the measured mile trial, the boat was run one knot at a speed of twelve knots, and a circle described both to port and starboard with the torpedo spar out; the spar stood the strain, and the boat behaved in all respects satisfactorily.

The requisite certificate for the acceptance of the boat has been given by the Admiralty Surveyors, and the boat will be shipped by the s.s. *Abington*, leaving in the course of a few days.

I have, &c.

M. F. OMMANNEY.

The Hon. the Colonial Secretary, Tasmania.

TRUE copy from office record.

THOS. C. JUST, *Major T.D.F., Staff Officer.*
19. 8. 85.

(2.)

(Copy.)

H.M.S. Nelson, Sydney, 20th October, 1884.

SIR,

IN accordance with your Memo. dated 10th October, 1884, we visited the Torpedo Defence plant of the Tasmanian Government, and are of opinion that the failure of the dynamo-electric machine is chiefly due to the external resistance of the circuit being insufficient to balance the internal resistance of the machine, thereby causing the heating and the final destruction of the commutator, which latter was of very inferior make. We therefore suggest that before condemning the machine a better constructed commutator be supplied by the makers, and we believe that ebonite would be a better material for the core; that the machine be then run with an additional external resistance either of carbon or by introducing a second light in the circuit in order to reduce the heating of the commutator.

On request of the Colonel Commandant, we got up steam in their Torpedo Boat and ran it at full speed, which was most satisfactory.

We have, &c.

THOMAS C. FENTON, *Torpedo Lieutenant.*
WM. GILES, *Chief Engineer.*

(3.)

TORPEDO BOAT.

Office of Inspector of Machinery, Hobart, 13th August, 1885.

SIR,

I HAVE the honor to submit (enclosed herewith), in accordance with your instructions, and for the information of the Hon. the Treasurer, the following "Reports" re Torpedo Boat, No 191, 2nd Class; viz.—

- A. Inspection of Machinery.
- B. " Hull of Boat.
- C. " Slipway, Boat Shed, &c.

I have, &c.

JOHN CLARK.

To the Hon. ADYE DOUGLAS, Esq., Chief Secretary, Tasmania.

(A.)

REPORT of Inspection of Engines and Boiler of Torpedo Boat, No. 191, 2nd Class, constructed by Messrs. Thornycroft & Co., London, 1883.

METHOD OF INSPECTION.

1. Removed cylinder covers; found cylinder covers and piston slightly clogged with grease, otherwise in good order.
2. Slide-valve covers were removed; valves and faces in good order.
3. Examined piston-rods, connecting-rod, and cross-head guides; found a slight play in the forward bottom connecting-rod end,—otherwise they were in good order.
4. Uncoupled the engine and propeller shafting, tested the accuracy of the line of shafting and coupling faces; found them to be in line and fair.
5. Opened the condenser, first on the circulating connections, then the exhaust; discovered a small stone in the circulating chamber, probably inserted through the discharge pipe in the boat's side when laid up, by some mischievous person. Opened the exhaust side of the condenser and drew a few of the condenser tubes, which, with the exception of being slightly greasy, were in excellent order.
6. Drew the air-pump bucket, also foot and head-valves; found them much coated with grease, and from their condition concluded there must be a considerable quantity of grease in boiler.
7. Emptied the boiler and removed the manhole door, and found boiler, internally, coated with grease, a state which is considered by designers and constructors of this class of boiler to be highly detrimental to its safe or good working.
8. Proceeded to properly boil out and cleanse boiler, and to put machinery together preparatory to a steam trial.
9. First steam trial made (Tuesday, August 4th, 1885.) Result unsatisfactory; cause, gagging of valves in air-pump, from slight swelling of India-rubber discs produced by action of caustic water when boiling out condenser.
10. Drew air-pump bucket and valves, and slightly pared discs; examined and properly faced atmospheric valve to its seating; replaced all, and prepared for steam trial.
11. Got up steam, and tested machinery at Prince's Steps (near to "Military Stores.") Result satisfactory. Reported to Heads of Departments, and received instructions to make steam trial on the 7th instant (August, 1885), at 11 A.M.
12. The Torpedo boat, under the charge of the Commandant, Colonel Legge, and having Captain Riddle (Harbour Master) on board (to take time and distance run), proceeded on a steam trial trip on the 7th August, at the time named in instructions. The machinery was driven by Mr. Pitfield, who formerly performed this duty on the boat; the boiler was fired by a man experienced in the firing of ordinary marine boilers, but a novice with this class of boiler, which is of the locomotive type, constructed with the "Belpair" pattern of firebox and casing, worked under "forced combustion" by means of a fan driven by a separate engine to force air into the ash-pit of furnace. Steam was raised to a pressure of 120 lbs. per square inch, and a start made to run the measured mile, the engines making 550 revolutions per minute; at the completion of this run the steam pressure had fallen to 75 lbs. per square inch, the engines making only 440 revolutions per minute. Steam was again raised, and when pressure reached 150 lbs. to the square inch and revolutions equalled 660 per minute, a fresh start was made to run the mile; at its close steam had fallen (as before) to 75 lbs. per square inch. A third trial afforded similar results, establishing the fact that this class of boiler requires a stoker of special practice and experience.

13. Returned to moorings, and proceeded to take indicator diagrams showing the action of the steam in the cylinders, and the operations of the slide-valves. Also tested the efficiency of the condenser and air-pump. The condenser maintaining a steady vacuum of 23.5 inches, all the supplementary and main engines exhausting into the condenser, the weather barometer reading 29.80; the steam gauges on the boiler and in engine-room showing a pressure of 125 lbs. per square inch above the atmospheric pressure of (approximately) 14.90. Also worked all the engines (five) exhausting into the atmosphere, the condenser maintaining a vacuum of 28.5 inches. Repeated the testing of the condenser (all engines exhausting into it) with repeating results, the difference between the vacuum gauge and the weather barometer being in both instances = 4.3, or within 0.3 of the maximum obtained by the most experienced officers with the highest class of marine engines in the British navy.

14. (1a.) Engines, revs., 660. Steam, 150. Vac., 26.5. I.H.P. = 170 (gross).
 (2a.) Engines, revs., 600. Steam, 140. Vac., 26.5. I.H.P. = 150 (gross).

GENERAL REMARKS.

The design, construction, and equipment of the machinery and boiler are of a very superior character. The brasses of connecting-rod of blowing engine, and of forward connecting-rod of main engines, need careful and skilful adjustment to prevent objectionable noise now created when working. The inordinate quantity of oily matter about the machinery and in the bilges of the boat, combined with the lubberly appearance of the machinery department I discovered on my first inspection, lead me to recommend that the machinery be placed in the charge of a first-class Engine room artificer, as in the Royal Navy, or a sea-going engineer holding a Board of Trade Certificate of Competency not lower than that of second-class.

Willing assistance has been throughout the inspection rendered by the "Torpedo Instructor," and by the men of the corps placed under my instructions.

JOHN CLARK, *Inspector of Machinery, Tasmania.*

13th August, 1885.

(B.)

REPORT of Inspection of Hull of Torpedo Boat, No. 191, 2nd Class, constructed by Messrs. Thornycroft & Co., London, 1883.

- (a) 1. Material used in construction is Bessemer Steel, galvanised.
 (a) 2. Dimensions—Length on L.W.L. = 63' 0".
 " Breadth or Beam, ditto = 7' 6".
 " Depth amidships = 4' 0".
 (a) 3. Aggregate wetted surface, L.W.L., 423.4 sq. ft.
 (a) 4. Displacement on L.W.L., 12.5 tons.
 (a) 5. Approximate Weight of Boat and Engines, 12 tons.

1. The boat, on my first visit to her, was in the hands of Mr. Pitfield, who was engaged endeavouring to renovate the hull where indented, and riveting some plates in the vicinity of the boiler in the bottom of the vessel. The indents consisted of one in the forward compartment and one under boiler compartment, all slightly altering and affecting the perfect symmetry of the lines of the hull, and tending to lessen the speed. After Mr. Pitfield had done all in his power to correct the concavities, the places were white-leaded to form even surfaces, and painted.

2. The boat was launched on the 3rd of August, 1885, and towed to Princes' Steps, near to Military Stores, and moored, where she remained for 20 hours, and no leakage was at the expiration of that time perceptible. After the first steam trial the boat remained for a period of 72 hours in the water, and was found to have made very little water. Up to this date the engines had not been worked up to their maximum speed.

3. On the 7th August the boat proceeded under steam for a full-speed trial (*vide* Inspector's Report of Machinery, &c. annexed), after which the boat was, by order of the Commandant, taken to her moorings near Government House, where she remained till the following day, when I visited her and found two inches of water in the boiler compartment, the accumulated leakage in 18 hours at rest.

4. I suggested the advisability of taking the boat on the slip, and received instructions complying therewith, which were consequently carried into effect by Mr. Bradley, of the Public Works Department. As the boat was being hauled up I observed the water running out of the boat from or near to the places repaired, caused by four rivets having been sprung or drawn inwardly almost through the plates. This I attribute to the severe concussive action of the engines when at full speed acting upon the previously weakened portions of the bottom.

5. To strengthen this part of the vessel I would recommend that an inside lining plate be introduced, and riveted cold with the best charcoal iron rivets. To perform this operation properly a thoroughly competent mechanic accustomed to this class of boat-building will be required, the ordinary riveters being, as a rule, too "heavy-handed."

6. When examining the leaky rivets in the hull, I observed about 20 rivets of entirely different character from those used by the original constructors of the boat.

7. During the time the boat was lying near the Military Stores the Master Gunner afforded me every assistance in his power in mooring her, furnishing me also with all necessary warps, stores, &c.

8. Deck fittings are complete and in good order, with the exception of a hand bilge-pump, originally supplied, but now wanting, necessitating the bailing out by hand-dippers. I recommend that the item be made good.

JOHN CLARK, *Inspector of Machinery, Tasmania.*

13th August, 1885.

(C.)

REPORT upon the Boat-ways and Shed used for slipping, launching, and housing the Torpedo Boat, No. 191.

1. Dimensions of Ways, &c. are as follows, viz.:—Length of Ground Ways, 160 feet. Width of ditto, centre to centre, 5 feet 6 inches. Grade or Incline of Ways, 1 in 20. Length of Cradle, 60 feet.

2. Cradle is fitted with seven pine bilge blocks and usual tackle on each side (14 in all.)

3. Purchase for hauling up Cradle consists of an ordinary double-purchase winch, with half-inch proof chain. Test load (direct) of three tons. Purchase has a break wheel attached, but has no break fitted to it. I strongly recommend that one be supplied without delay, as already an accident has occurred (3rd August), which narrowly escaped being of a serious character.

4. Approximate strain exerted in hauling the boat up the incline of ways 30 cwt.
The proof strain of chain when new..... 60 cwt.

Leaving emergency margin of..... 30 cwt.

This I consider sufficient.

5. *Re* the Cradle, I recommend that the bilge blocks and tackle be increased to 14 on each side (28 in all), and that the camber of the bottom of the boat be ascertained, and suitable bearers be accurately fitted thereto. Also that the whole of the bearing surfaces on the carriage be securely covered with a soft, yielding medium, either cork, matting, or India-rubber. I give preference to these materials in the order written.

6. To enable the launching of the boat to be effected at any state or period of the tide the present "ways" must be lengthened 20 feet. This would necessitate a corresponding lengthening of the Cattle Jetties.

Shed.

1. Length of Shed, 70 feet. Width of ditto, 21 feet.

2. Shed is constructed of hardwood frame, covered with corrugated iron, resting on rubble stone foundations. Roof also covered with iron. A door is fitted in each side, and a pair of batten gates at seaward end for ingress and egress of torpedo boat. All openings are secured by means of padlocks and keys. In addition to the slip way for torpedo boat, there is a planked way for row-boat.

3. Water has lately been laid on to the shed. The service consists of a half-inch lead pipe, with brass union screw-down tap and 70 feet of India-rubber hose, for the purpose of filling boiler, washing down boat, &c., &c. By this service a maximum rate of 150 gallons per hour can be attained when filling boiler. Should it be required to get up steam in the shed, the boiler being empty, a considerable loss of time must ensue, as 200 gallons of water would be required in the boiler, and the time taken to introduce it would be 1 hour 20 minutes. To obviate this I would suggest that the shed be fitted inside, at the proper elevation, with a 400 or 500-gallon tank, for filling the boiler under a slight pressure, thus forcing air out of the boiler. (If possible, the water should be heated to assist the expulsion of air.) I should further recommend that a second tank be fitted up (say of 400 gallons), and kept charged with a solution of $\frac{3}{4}$ lb. of common soda to the gallon of water, for filling the boiler with when it is laid up, as a preventative to corrosion.

4. I further recommend that a flue for the exit of smoke be fitted in roof of shed, in case of steam being required to be got up before launching.

5. I would observe that the durability, and consequent constant state of efficiency of this class of boat, machinery, and boiler, depend entirely, and will be in accordance with the amount of intelligent care bestowed upon them. Ample precedent is afforded in the trouble known to have been experienced upon the first introduction of these vessels, from the want of knowledge of the treatment they required for their working and caretaking, for establishing as a necessity that special qualifications should be required in officers selected for this portion of the duties connected with her. As an additional guarantee of this, it should be an indispensable condition that they be holders of at least Second-class "Certificates of Competency."

JOHN CLARK, *Inspector of Machinery.*

13th August, 1885.

FORWARDED to the Hon. the Treasurer.

B. TRAVERS SOLLY.

13 Aug. '85.

I SHALL be glad if the Inspector of Machinery will give an estimate of the probable cost of carrying out his recommendations, and, further, if he will state whether he considers Mr. Pitfield competent to discharge the duty of Engineer of the Torpedo Boat. I shall feel obliged if the Hon. the Chief Secretary will obtain an early reply to this request.

W. H. BURGESS, *Treasurer.*
14. 8. '85.

THE Inspector of Machinery will be good enough to furnish the information requested by the Hon. the Treasurer as soon as possible:

ADYE DOUGLAS.
14 Aug. '85.

The Inspector of Machinery.

Office of Inspector of Machinery, Hobart, 15th August, 1885.

SIR,

IN obedience to instructions (14th August, 1885), I have the honor to submit, for the information of the Hon. the Treasurer, the following approximate estimate of cost of Tanks, &c. for Torpedo Boat-shed; viz.—

1. Two 400-gallon Tanks, with all necessary cocks and pipe fittings, and wood frames or stands complete, £25.
2. Iron Smoke-flue, fixed complete in roof, £3 10s.
3. Block (bilge) paddings, £3.
4. One copper Hand Bilge-pump, from £3 to £4.

Re Repairs to the bottom of the Torpedo Boat.

Before venturing to offer an opinion as to the cost and detailed method of procedure necessary to secure the best construction, a special examination and mature consideration would be necessary, therefore I await further instructions to embody this in a further Report.

Re Mr. Pitfield's competency to discharge the duty of Engineer of the Torpedo Boat.

I am not sufficiently acquainted with Mr. Pitfield's qualifications as a Marine Engineer to offer a reliable opinion on this matter, nor do I know if he holds Certificates of Competency, or has had any sea service on the watch in the Engine-room, or not; but I may state for the consideration of the Hon. the Treasurer, that the "Board of Trade" of England, and all similar institutions throughout the British Dominions, insist that all Engineer Officers in charge shall be possessed of Certificates of Competency, and that the "Regulations relating to the Examination of Engineers" under the Navigation Acts, 1871 and 1881, determine that applicants for Certificates are not eligible for examination unless satisfactory evidence is produced of sea service, which is defined to be twelve months' service in the foreign trade, (service in the coasting trade must amount to at least half as much again), in the capacity of an engineer taking watch; (service in any other capacity will not be accepted.) The above refers to Certificates of Competency for "Second-class Engineer."

I have, &c.

JOHN CLARK.

To the Hon. ADYE DOUGLAS, *Esq.*,
Chief Secretary, Tasmania.

FORWARDED for the information of the Hon. the Treasurer.

ADYE DOUGLAS.
15th August, '85.

The Treasury, 18th August, 1885.

The Hon. the Chief Secretary.

WILL the Hon. the Chief Secretary be good enough to request the Inspector of Machinery to have the work reported by him on the 15th instant as being required in connection with the preservation of the Torpedo Boat, Nos. 1, 2, 3, and 4, carried out as soon as possible, under Mr. Clark's supervision, if convenient.

W. H. BURGESS, *Treasurer.*

(4.)

DETAILED Statement, Day and Date, of everything the Torpedo Boat has cost the Colony since her arrival, with the Names of the Persons employed upon her, as recorded in Staff Office.

		£	s.	d.
1884.				
June 2.	Nobbs, Chas., labour cleaning engines, &c.	3	18	0
" 7.	Cracknel, C., cleaning and painting boat.....	4	10	0
Aug. 30.	Boyle, J., pay as fitter	10	10	0
Sept. 11.	Cracknell, C., wages.....	2	0	6
" 7.	Boyle, J., wages as caretaker.....	13	0	0
Oct. 27.	O'May Bros., towing boat to Domain.....	0	10	0
Nov. 7.	Lucas, J., expenses of slipping	7	9	0
Dec. 15.	Grubb, W. C. & Co., cartage spar and stores.....	0	13	6
	Pitfield, W., repairs to boat	2	10	0
Oct. to Dec.	Boyle, J., pay as caretaker	26	0	0
1885.				
Mar. 4.	Pitfield, W., pay for driving boat	7	10	0
Feb. 4.	Williams, J., slipping boat	4	0	0
" 25.	Boyle, John, pay for February	5	0	0
Mar. 21.	Kennedy & Sons, repairs to boat	1	3	9
" 26.	Kemp, Charles, cleaning and painting boat.....	4	4	0
Apl. 4, 20.	Ditto, wages, care of boat to 14. 4. 85.....	6	6	0
" 30.	H.M. Gaol, slippers	0	8	0
May 4.	Harbottle & Co., steel grey paint	1	0	0
" 12.	Colonial Storekeeper, coal.....	0	13	9
" 13.	Ditto, white rope and red lead	0	8	0
" 20.	Ditto, rope, white, 1 in., fathoms, 6	0	8	6
" 28.	Boyle, J., for firing boat 14th and 15th	1	1	9
	Pitfield, W., repairs to boat	9	15	0
June 17.	Crisp & Rex, painting and repairing dingy.....	3	0	1
" 24.	Bradley, Jno., wages of men launching and slipping.....	0	17	7
" 29.	Pitfield, W., driving boat on 13th May	1	10	0
July 9.	Ditto, removing dents sustained in transit from England and in slipping	2	5	0
" 10.	Murdoch, Mr., caustic soda	1	1	0
Aug. 11.	Patent packing and hemp.....	2	2	0
" 12.	Men for launching and slipping	1	10	0
" 14.	Part expenses connected with repairs under Inspector of Machinery Dillon, boat hire, mooring, &c.....	5	6	10
" 17.	Grubb Bros., conveyance of torpedo machinery	1	13	0
" 20.	Sapper James, labour, Inspector of Machinery	2	2	0
" 30.	Gellie & Pitfield, driving boat and repairs	7	4	0
		6	0	0
		<u>£147 11 3</u>		

RECAPITULATION.

	£	s.	d.	
Cleaning engines, painting, &c.	13	12	0	
Slipping and launching.....	13	16	7	
Wages in lieu of crew	75	18	3	
Fuel	0	13	9	
Stores	3	19	6	
Repairs, chiefly under Inspector of Machinery.....	31	4	7	
Repairs to dingy	3	0	1	
General expenses	3	4	6	
*Item for conveyance torpedo machinery.....	2	2	0	
		<u>£147 11 3</u>		

* Erroneously charged to Torpedo Boat. Will be transferred to another account.

W. V. LEGGE, *Lt.-Col., R.A., Colonel Commandant.*

11th September, 1885.

(5.)

No provision has been made for the appointment of an officer to take charge of the boat, but in the Estimates for 1886 Parliament has been asked to provide for the Service.

WILLIAM THOMAS STRUTT,
GOVERNMENT PRINTER, TASMANIA.