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Our Ref: CI/TPD19000755/P

25th April 2019

Fatal Accident Investigation Team

Traffic Police Department
Singapore Police Force
10 Ubi Avenue 3
Singapore 408865

MECHANICAL INSPECTION REPORT OF MOTORCYCLE JTA 5221

1. We refer to your request dated 28th December 2018 to conduct a physical inspection of a motorcycle bearing registration number JTA 5221 (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 01st December 2018.
2. The purpose of this inspection is to primarily determine if there was any possible mechanical failure to the Motorcycle that may have contributed to the accident.
3. Following the request, we had carried out a physical inspection of the Motorcycle on 4th March February 2019 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. We now set out below our observations and comments with respect to this inspection.

General Condition

4. The mileage of the Motorcycle was 6320km recorded at time of our inspection.
5. The Motorcycle was observed to have sustained minor damages at the frontal right portion. The body parts that were found to have been damaged include its right hand side fairing, front shield, right handle, exhaust muffler, right wing mirror support bar and right side foot rest amongst others as a result of the accident. See photo 1- 8.



Photo 1 shows a general view of the mileage 6320KM at time of our inspection.



Photo 2 shows a general view of the front body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be confined to its front & right side of the Motorcycle.



Photo 3 shows a close up view of the front right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be confined to its front, right side of the Motorcycle.



Photo 4 shows a close up view of the front right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be confined to its front, right side handle bar of the Motorcycle.



Photo 5 shows a general view of the front right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be at its front & right side fairing of the Motorcycle.



Photo 6 shows a close up view of the front right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be at its front & right side fairing of the Motorcycle.



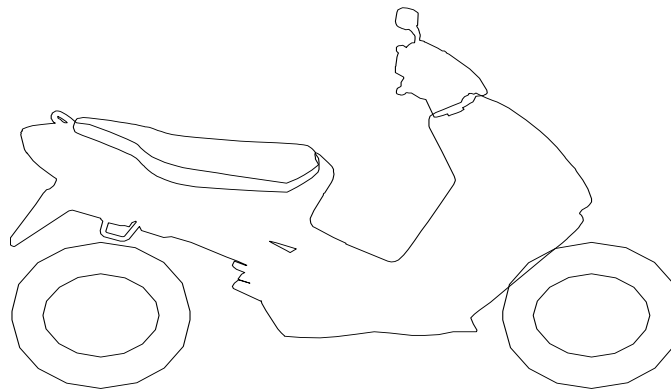
Photo 7 shows a general view of the rear body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be in good condition unaffected by the accident's impact.



Photo 8 shows a close up view of the exhaust area of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be at the exhaust muffer of the Motorcycle.

Tyres and Wheel Rims

6. The condition of the Motorcycle's 2 tyres was observed to be in serviceable condition. The tread pattern of the 2 tyres was clearly visible. We did not observe any tear, burst mark(s) and/or punctured hole(s) on the sidewalls as well as across the tread of the 2 tyres. The 2 tyres were both observed to be sufficiently inflated for vehicular operation. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-



Vee Rubber
70/90 - 17 (2mm)

Vee Rubber
70/90 - 17 (2mm)

7. The rear & front tyre was wrapped around alloy wheel rims that were found to be without any significant damage. See photo 9 – 12.



Photo 9 shows the rear tyre of the Motorcycle. The rear tyre was observed to be in serviceable condition & the tyre was also observed to be sufficiently inflated for vehicular operation.



Photo 10 shows the rear tyre of the Motorcycle. The rear tyre was observed with remaining tread depth of approximately 2mm. The tyre was also observed to be sufficiently inflated for vehicular operation.



Photo 11 shows the front tyre of the Motorcycle. The front tyre was observed to be in serviceable condition & the tyre was also observed to be sufficiently inflated for vehicular operation.



Photo 12 shows the front tyre of the Motorcycle. The front tyre was observed with remaining tread depth of approximately 2mm. The tyre was also observed to be sufficiently inflated for vehicular operation.

Engine & Drive Train

8. Upon examination of the Motorcycle's engine area, we had observed that the various engine related parts and components were intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the engine area of the Motorcycle. See photo 13



Photo 13 shows no sign(s) or indication(s) of fluid leak observed around the underside of the engine area of the Motorcycle

9. The gear chain of the motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. Free play tension test was also conducted & found adequately acceptable. See photo 14 & 15 below.



Photo 14 shows the general view of the gear train (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.



Photo 15 shows the general view of the gear train (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes. Free play tension was also observed & found adequately acceptable.

Steering System & Braking System

10. My checks on the various steering components of the Motorcycle revealed that its steering system was in serviceable condition. Its front fork and fork bracket were both found to be intact and undamaged. Turning the handle bar towards the left and right also did not produce any abnormal free play and/or resistance.
11. The brake system of the Motorcycle was of a Semi-hydraulic type, where hydraulic (brake fluid) pressure controls the brake for the front & the rear wheel by drum brake system. The brake for the front wheel is engaged by pulling the brake lever at the right side of the Motorcycle's handle bar while the brake for the rear wheel is engaged by stepping on the brake pedal at the right side foot rest of the Motorcycle.
12. Static brake tests conducted on the Motorcycle front & rear brakes had appeared to indicate that the braking system of the Motorcycle was in serviceable condition. The Motorcycle's braking system like the brake discs, brake callipers, brake lever, brake pads, brake drum, brake foot pedal and brake hoses revealed all to be intact and without damage. The braking force was felt upon pressing the brake lever. This would indicate that there was no leakage of pressure/vacuum in the brake system. Our checks on the brake fluid had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.

Operational Test

13. We subsequently carried out an operational test of the Motorcycle's braking system. This was done by manually pushing the Motorcycle forward and backward, simulating the Motorcycle in motion, and thereafter engaging the front brake and rear brake of the Motorcycle. At the end of the short operational test, I did not observe any abnormal behaviour of the Motorcycle's braking system. The front wheel and rear wheel of the Motorcycle were able to stop rotating immediately upon depressing the brake lever and stepping on the brake pedal.

In general, the observations gathered during the static brake test & manual movement test had indicated that the steering system & braking system of the Motorcycle was in serviceable condition. See photo 15 - 20 below.



Photo 15 shows our checks on the brake fluid (front) reservoir had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.

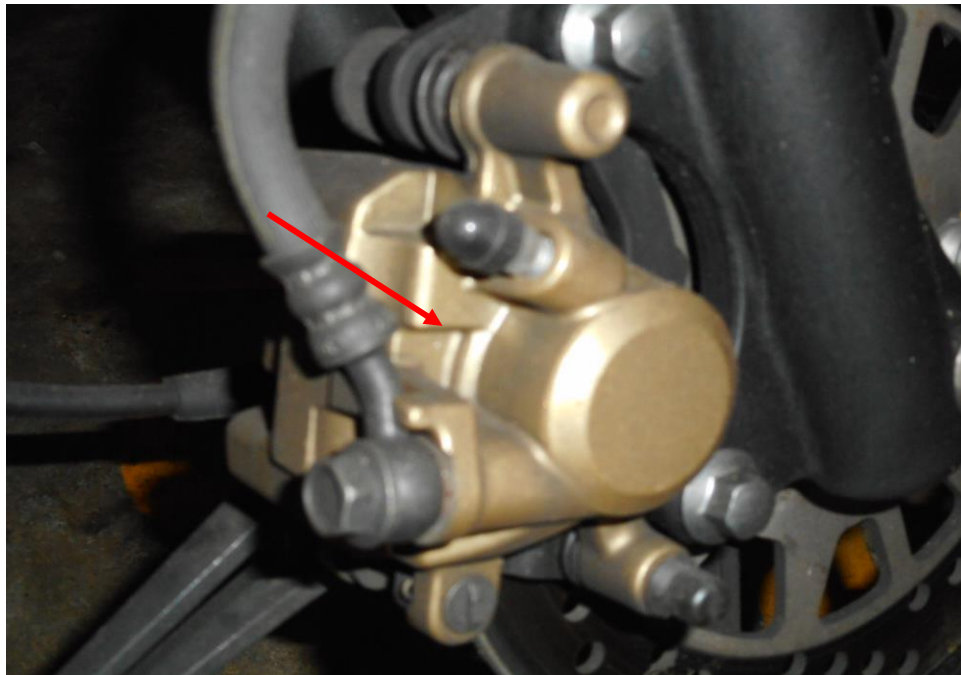


Photo 16 shows our checks on the brake callipers housing (front), there was also no sign(s) or indication(s) of fluid leak observed around the Motor Cycle.

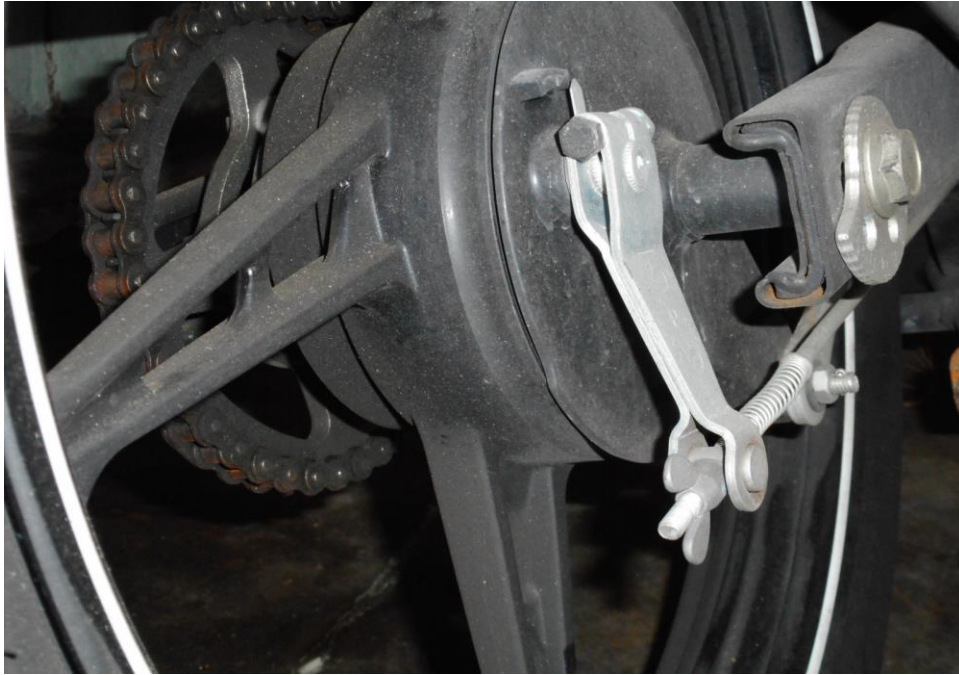


Photo 17 shows our checks on the drum brake housing (rear) no leakage or fluids is found present around it, and without contamination.

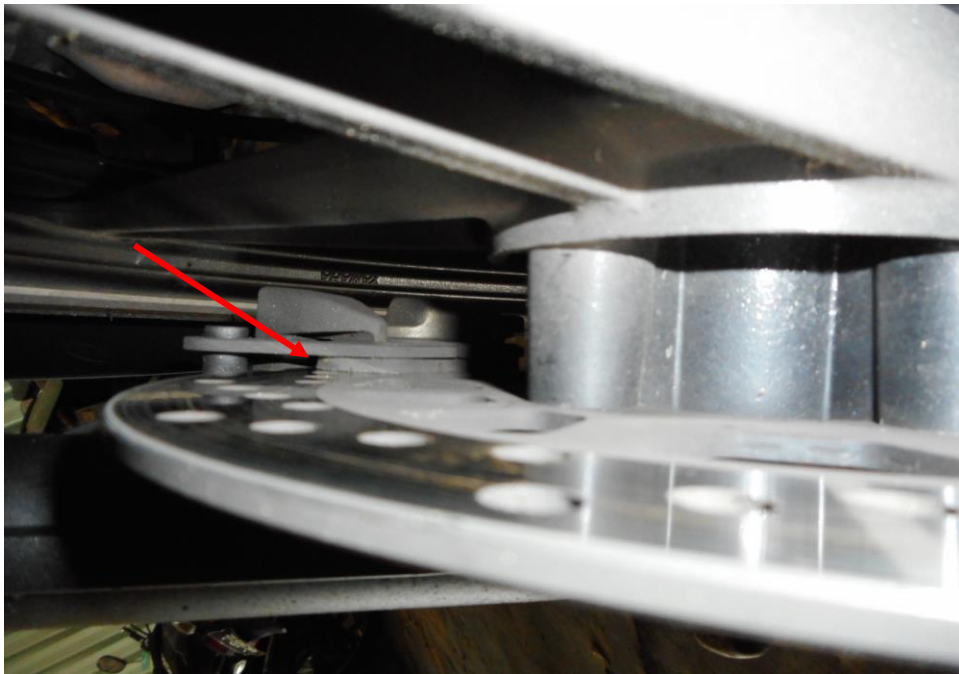


Photo 18 shows a close-up view our checks on the brake pad (front). The frictional material was observed to be in a sufficient level for operational purposes.



Photo 19 shows testing of the braking of the front brake in progress. The braking force was felt upon pressing the brake lever. The brakes are in serviceable condition.



Photo 20 shows testing of the braking of the rear brake in progress. The braking force was felt upon pressing the brake lever. The brakes are in serviceable condition.

Conclusion

14. Basing on our physical inspection of the Motorcycle, it appears that the steering system and braking system of the Motorcycle were all in serviceable condition. We did not find any evidence(s) to suggest that there was possible mechanical failure to the Motorcycle that may have caused and/or contributed to the accident.
15. The tyres of the Motorcycle were found to be in a serviceable condition. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the tyre. It was sufficiently inflated for vehicular operation with remaining tread depth of approximately 2mm each.

Sherwin Beh

Technical Investigator

Ang Bryan Tani

AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA

Senior Technical Investigator

Technical Investigation & Reconstructionist (SAE-A)

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