



Your Ref: TP/IP/52969/2018
Our Ref :CI/TPD18018441/Z

26th November 2018

Fatal Accident Investigation Team
Traffic Police Department
Singapore Police Force
10 Ubi Avenue 3
Singapore 408865

MECHANICAL INSPECTION REPORT OF MOTORCYCLE AKD 1832

1. We refer to your request dated 27th September 2018 to conduct a physical inspection of a motorcycle bearing registration number AKD 1832 (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 15th September 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 23rd October 2018 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 recorded at time of our inspection was 85507km.
5. The Motorcycle was observed to have sustained minor damages at the rear left portion. The body parts that were found to have been damaged was its left handle bar, left wing mirror, left & right side fairing and left foot rest as a result of the accident.
6. This was likely to be the consistency of the accident's case fact that on 15th September 2018 at about 12.40 a.m., footage from the Motor Taxi's built in camera revealed that the he was travelling straight along Pan Island Expressway (PIE, Tuas) on lane 1 of a 3 lanes road. As he was driving forward, an unknown motor car ahead of him was seen applying the brakes. The Motor Taxi then swerved to the left to avoid collision. The left front portion of the Motor Taxi collided onto a Motor Cycle (AKD1832) as he switched lane. See photo 1 to 5 below.



Photo 1 shows the mileage of the Motorcycle recorded at time of our inspection was 855072km.



Photo 2 shows a general view of the right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained minor damages as a result of the accident.



Photo 3 shows a general view of the rear body of the Motorcycle at the time of our inspection. The Motorcycle was observed to sustained minor damage at the rear portion at time of inspection.



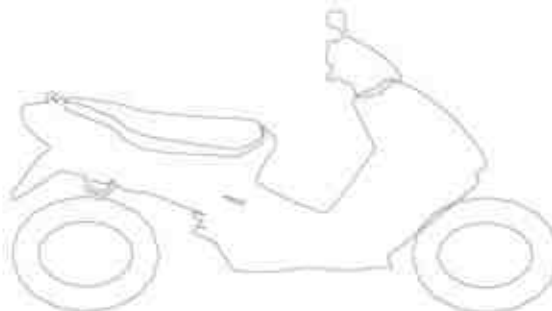
Photo 4 shows a general view of the left body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained minor damages which includes missing left wing mirror, slight bend handle bar, bent foot rest amongst others as a result of the accident.



Photo 5 shows a general view of the front portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained minor damages which include missing left wing mirror, slight bend handle bar, and bent foot rest amongst others as a result of the accident.

Tyres and Wheel Rims

7. 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:-



Maxxis Diamond MA-3D 80/90 - R17 (2mm)

Maxxis Diamond MA-3D 70/90 - R17 (3mm)

8. The rear tyre was wrapped around alloy wheel rims that were found to be without any significant damage. See photo 6 & 7 below



Photo 6 shows the rear tyre of the Motorcycle. The rear tyre was observed to be in serviceable condition with remaining tread depth of approximately 3mm. The tyre was also observed to be sufficiently inflated for vehicular operation.



Photo 7 shows the front tyre of the Motorcycle. The front tyre was observed to be in serviceable condition with remaining tread depth of approximately 2mm. The tyre was also observed to be sufficiently inflated for vehicular operation.

Engine & Drive Train

9. 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. The engine underside was however observed to be covered with brownish fluid, suggesting leakage of fluid as a result of the accident.
10. 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 8 – 11 below.

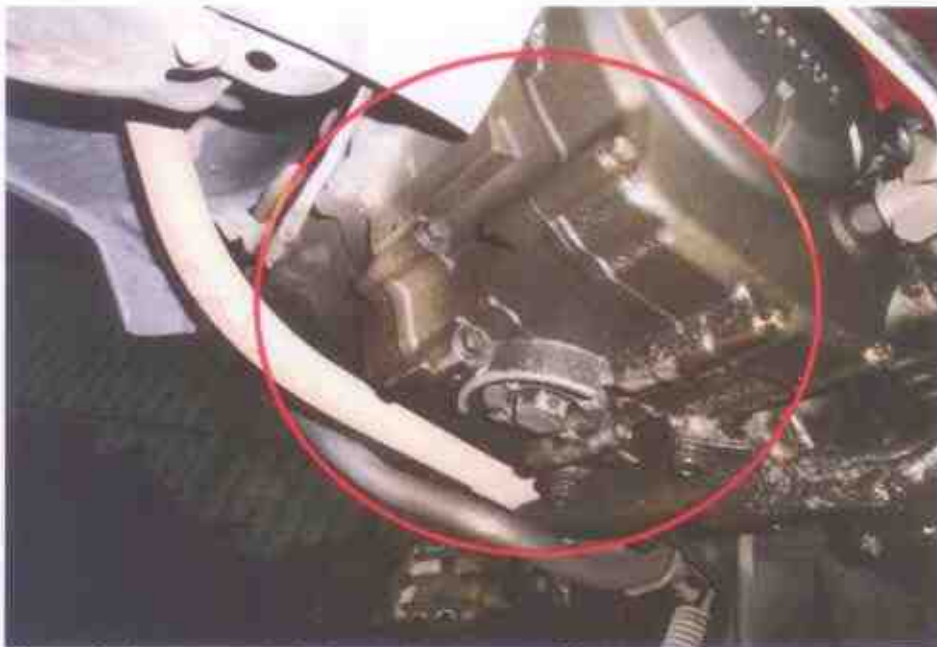


Photo 8 shows no sign(s) or indication(s) of fluid leak observed around the underside of the engine area of the Motorcycle.



Photo 9 shows the general view of the gear train of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.



Photo 10 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 11 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

11. Our checks on the various steering components of the Motorcycle had revealed that its steering system was in serviceable condition. Its front fork was found to be intact and undamaged. Despite a slight bend to the left side handle bar (due to the accident) an operational test towards the left and right also did not produce any abnormal free play and/or resistance.
12. The brake system of the Motorcycle was of a semi-hydraulic type, where hydraulic (brake fluid) pressure controls the brake for the front wheel while the brake for the rear wheel is controlled by mechanical means (cables and springs). 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.

13. 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 foot pedal, rear brake cable & spring and brake hoses revealed all to be intact and without damage. There was some resistance felt (spongy like feel) upon pressing the brake lever & stepping on the rear brake foot pedal. This would indicate that there was no leakage of pressure/vacuum in the brake system. Our checks on the front brake fluid reservoir had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.
14. We subsequently carried out an operational test of the Motorcycle's braking system. This was done by riding on the Motorcycle moving forward and backward, getting the Motorcycle in motion via 1st & 2nd gear, and thereafter engaging the front brake and rear brake of the Motorcycle. At the end of the short operational test, we 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 brake test & steering test had indicated that the braking system & steering system of the Motorcycle was in serviceable condition. See photo 12 - 15 below.



Photo 12 shows the steering system was observed to be in a serviceable condition. It was able to be steered to the full left & right at time of our inspection.



Photo 13 shows our checks on the brake fluid reservoir had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.



Photo 14 shows testing of the braking of the front brake in progress. There was some resistance felt (spongy like feel) upon pressing the brake lever.



Photo 15 shows testing of the braking of the rear brake in progress. There was some resistance felt (spongy like feel) upon stepping on the brake pedal.

Conclusion

15. 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.
16. 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 2 & 3mm.



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