

Your Ref: TP/IP/69185/2018
Our Ref :CI/TPD19000747/Z

26th March 2019

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBN 439X

1. We refer to your request dated 28th December 2018 to conduct a physical inspection of a motorcycle bearing registration number FBN 439X (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 16th 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 18th December 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 at the time of our inspection was recorded at 020258km.
5. The Motorcycle was observed to have sustained damages at the frontal portion, rear portion & both its left side and right side. The body parts that were found to have been damaged include its front head lamp, missing right wing mirror, left & right foot rest, fuel tank, rear bracket, front left signal lamp, rear right signal lamp and handle bar amongst others. Its steering system (front fork) was also observed to be dislocated as a result of the accident.

6. This was likely due to the consistency of the accident's case fact that on 16th December 2018 at about 0244hrs, based on the video footage retrieved from LTA sky camera, an EMAS tow truck was travelling straight along Bukit Timah Expressway towards Woodlands, before Mandai Road exit, on lane 3 of a 3 lanes road. The tow truck was taking up an active job and was towing one breakdown unknown vehicle out of the expressway. While the EMAS tow truck was doing so, the motorcyclist who was riding alone travels directly behind the EMAS tow truck collided onto the rear of the tow truck. After the collision, both the motorcyclist & motorcycle skidded to the left and fell on the left side. See photos 1 to 9.



Photo 1 shows the mileage that was recorded at time of our inspection. The mileage recorded at 020258km.



Photo 2 shows a general view of the front body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained with relatively extensive impact due to the accident collision. Amongst the body parts damaged was its steering system (circled), which was observed to be bent inwards.



Photo 3 shows a general view of the front right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained with relatively extensive impact due to the accident collision. Amongst the body parts damaged was its handle bar & front fork-steering system (arrowed), which was observed to be bent inwards.

51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108



Photo 4 shows a general view of the rear left body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained damages at the frontal & rear portion, along both its left side and right side.



Photo 5 shows a general view of the rear portion of the Motorcycle at the time of our inspection. It was observed to have sustained damages affected by the accident's impact.



Photo 6 shows a close-up view of the head lamp & handle bar of the Motorcycle at the time of our inspection. It was observed to have sustained with damages due to the accident collision.

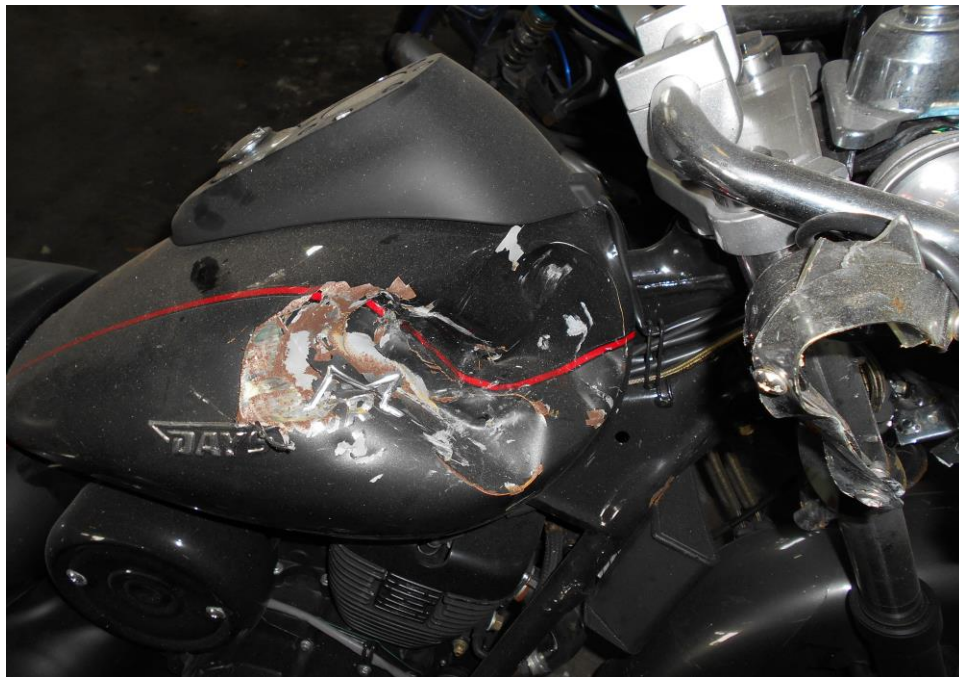


Photo 7 shows a close-up view of the fuel tank of the Motorcycle at the time of our inspection. It was observed to have sustained with damages due to the accident collision.



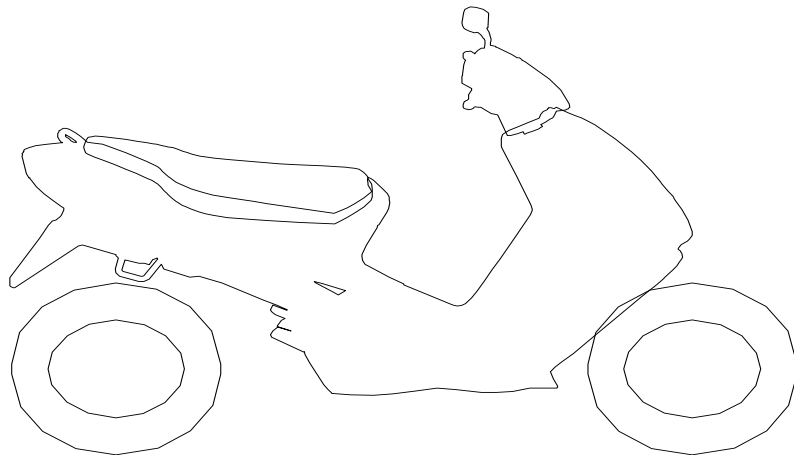
Photo 8 shows a close-up view of the missing right side foot rest of the Motorcycle at the time of our inspection. It was observed to be missing due to the accident collision.



Photo 9 shows a close-up view of the stuck left side foot rest and gear shifter of the Motorcycle at the time of our inspection. It was observed to have sustained with damages due to the accident collision.

Tyres and Wheel Rims

7. The condition of the Motorcycle's 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. Both tyres were 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:-



Kenda 180/90-15 (6mm)

Kenda 90/90-18 (5mm)

8. The rear tyre was wrapped around alloy wheel rim that was found to be without any significant damage. See photo 10– 11 below



Photo 10 shows the rear tyre of the Motorcycle at the time of our inspection. The rear tyre was observed to be in serviceable condition with remaining tread depth of approximately 6mm. The tyre was also observed to be sufficiently inflated for vehicular operation. There was no significant damage observed on the rear wheel rim & tyre.



Photo 11 shows the front tyre of the Motorcycle. The pattern of the tread was clearly visible with remaining tread depth of approximately 5mm. There was no tear, burst mark(s) and/or punctured hole(s) on the sidewalls as well as across the tread of the front tyre.

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. There was also no sign(s) or indication(s) of fluid leak observed around the engine area of the Motorcycle.
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 12 – 14 below.



Photo 12 shows no sign(s) or indication(s) of fluid leakage stain observed around the engine undercarriage area of the Motorcycle.



Photo 13 shows the semi-close view of the engine compartment. It was observed to be intact & undamaged unaffected by the accident's impact.

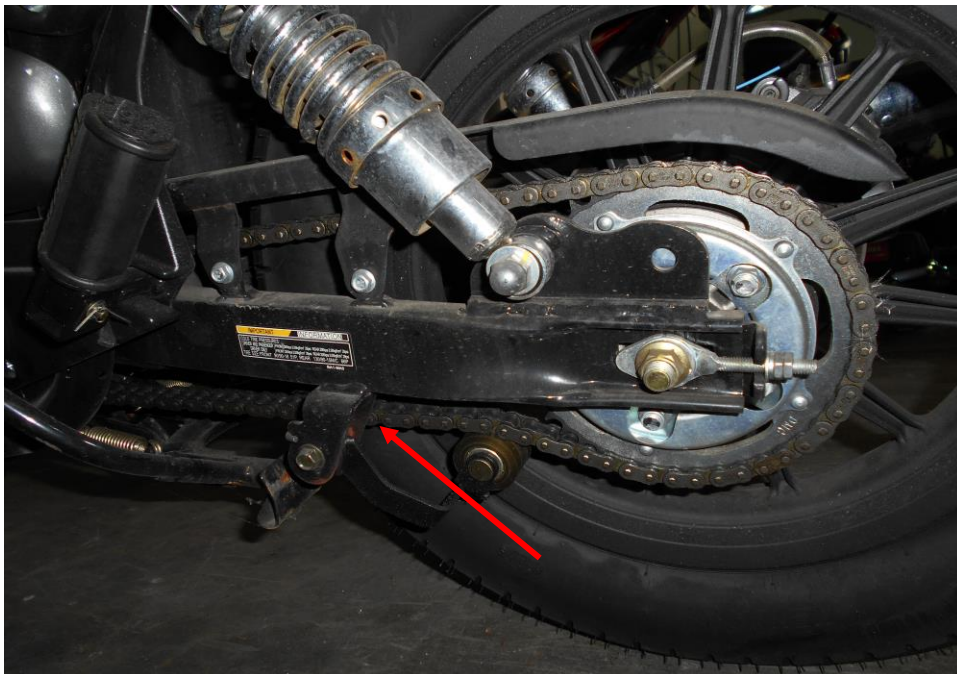


Photo 14 shows the general view of the gear train (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.

Steering System & Braking System

11. For this case, we were not able to conduct any test(s) on the steering system of the Motorcycle due to the damage on its handle bar and front fork. It was found to be bent inwards as a result of the accident, hence causing the whole steering system to be in an abnormal condition.
12. The brake system of the Motorcycle was of a fully-hydraulic type, where hydraulic (brake fluid) pressure controls the brake for the front & rear wheel. Our visual examination of the various components in the brake system, like the brake disc, brake calliper, drum and brake foot pedal, revealed all to be intact. There was also no visible tear or cut observed on the connecting hoses and cables.
13. Static brake tests conducted on the Motorcycle had appeared to indicate that the brake system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon gripping the hand brake lever & stepping on the rear brake foot paddle. This would indicate that there was no leakage of pressure/vacuum in the brake system also on the rear brake drum mechanical parts. Our checks on the brake fluid had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.
14. For this case, we were not able to carry out any operational tests to the steering system and braking system of the Motorcycle due to the damage of its steering system, which had rendered the Motorcycle immobility for the operational tests. See photo 15 - 19 below.



Photo 15 shows the handle bar and front fork was observed to be bent inwards as a result of the accident. Hence, we are not able to conduct any tests on the steering system of the Motorcycle.



Photo 16 shows the front brake calliper, front brake disc and front brake hose of the Motorcycle (arrowed), which are all part of the components in the front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

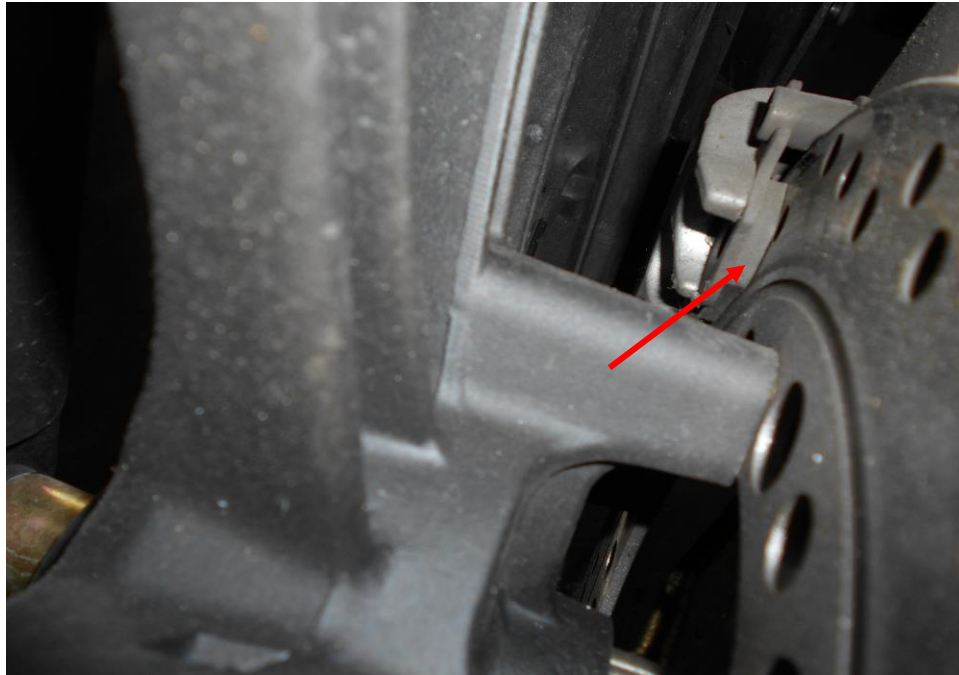


Photo 17 shows the front wheel of the Motorcycle. The type of brake system for the rear wheel was of hydraulic type, controlled by the hand brake lever of the Motorcycle. Our checks of the calliper (arrowed) & brake pad which are all part of the components in the rear brake system of the Motorcycle reveal all to be intact and without damage.

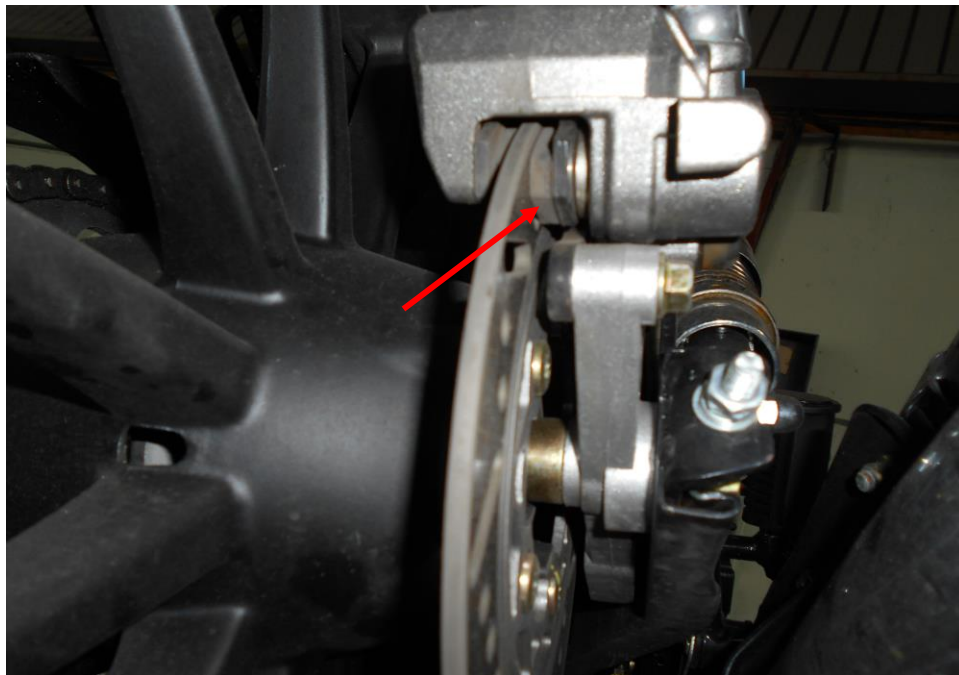


Photo 18 shows the rear wheel of the Motorcycle. The type of brake system for the rear wheel was of hydraulic type, controlled by the brake foot pedal of the Motorcycle. Our checks of the calliper (arrowed) & brake pad which are all part of the components in the rear brake system of the Motorcycle reveal all to be intact and without damage.



Photo 19 shows the front brake fluid reservoir of the Motorcycle. It was observed to be of sufficient level without any contamination at time of our inspection.

Conclusion

15. At the time of our inspection of the Motorcycle, its steering system could not be tested (due to damage as a result of the accident). Its brake system was however found to be in serviceable condition.
16. Notwithstanding that the steering system could not be tested, the observations gathered from our physical inspection of the Motorcycle had indicated no evidence to suggest possible mechanical failure to the Motorcycle that may have contributed to the accident.
17. The condition of the Motorcycle's 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. Both tyres were sufficiently inflated for vehicular operation with remaining tread depth of approximately 5mm & 6mm.

18. Our findings were based solely on a static and visual inspection of the Motorcycle. No operational test(s) could be carried out to the Motorcycle due to the damage of its steering system (as a result of the accident), which had rendered the Motorcycle immobile.

Rohaizal A. Rahim

Technical Investigator

Ang Bryan Tani

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

Senior Technical Investigator

Technical Investigation & Reconstructionist (SAE-A)

DISCLAIMER OF LIABILITY TO THIRD PARTIES:- This Report is made solely for the use and benefit of the Client named on the front page of this Report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part, does so at his or her own risk.