LKK Auto Consultants Pte Ltd

Company Registration No. 199607198R

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

Your Ref: TP/IP/65075/2018
Our Ref :CI/TPD18022475/Z

16th January 2019

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE BNK 6422

1. We refer to your request dated 06th December 2018 to conduct a physical inspection of a motorcycle bearing registration number BNK 6422 (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 25th November 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 02nd January 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 at the time of our inspection was not recorded due to the damages sustained to the ignition system as a result of the accident.

5. The Motorcycle was observed to have sustained damages at the frontal portion & along both its left side and right side. The body parts that were found to have been damaged include its front head lamp (dislodged), missing right wing mirror, front left & right fairing, radiator, exhaust manifold, foot gear shift pedal and handle bar amongst others. Its steering system (handle bar & 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 25th November 2018 sometime before 1106hrs, a Malaysian Motorcycle (BNK 6422) together with his pillion was travelling straight along BKE towards PIE on lane 3 of 5 lanes road when he collided onto the rear of a moving Motor Trailer, JPE 8896. See photos 1 to 8.

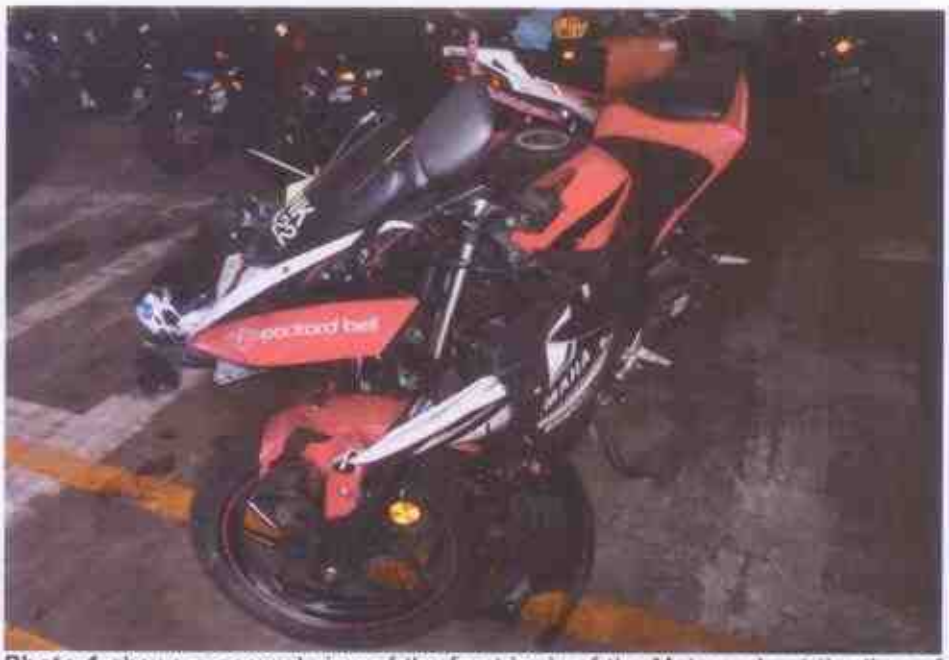


Photo 1 shows a general view of the front body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained with relatively extensive impact due to the accident collision. Amongst the body parts damaged was its steering system, which was observed to be buckled inwards.

Photo 2 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-steering system, which was observed to be broken.

Photo 3 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, along both its left side and right side as a result of the accident.

Photo 4 shows a general view of the rear portion of the Motorcycle at the time of our inspection. It was observed to be in good condition not affected by the accident's impact.

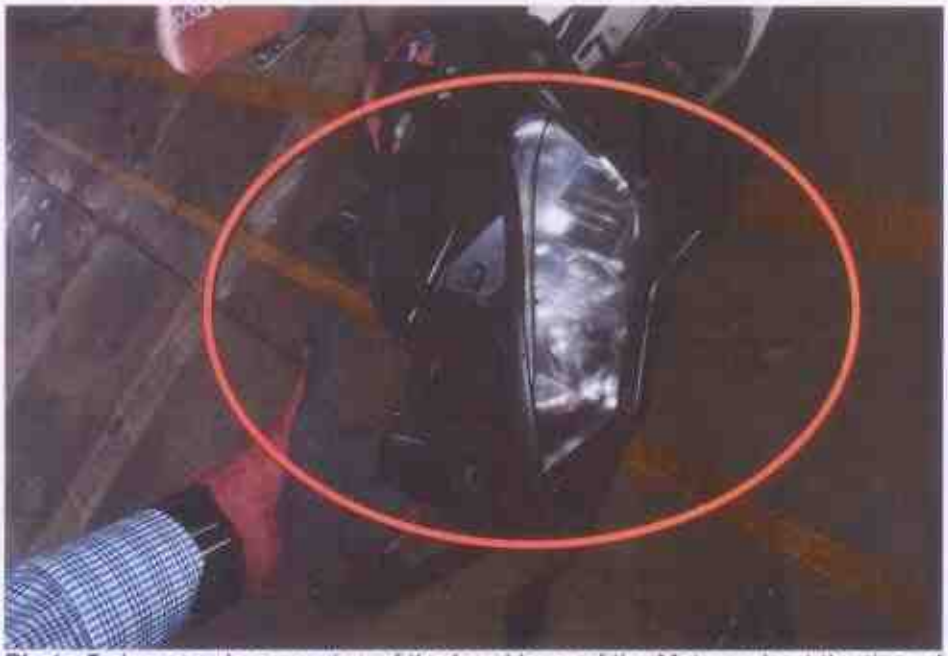


Photo 5 shows a close-up view of the head lamp of the Motorcycle at the time of our inspection. It was observed to be dislodged due to the accident collision.

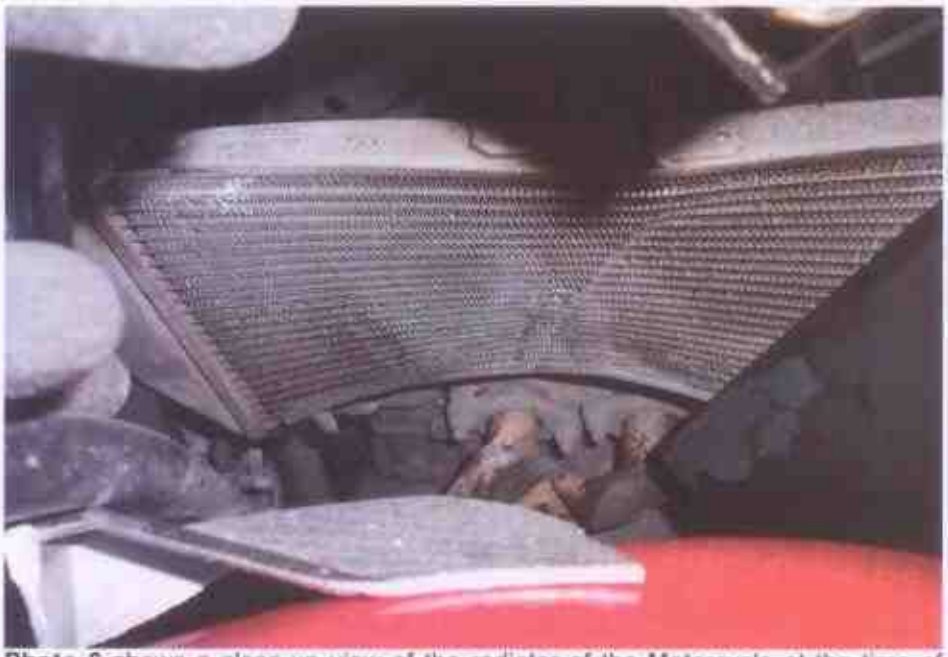


Photo 6 shows a close-up view of the radiator of the Motorcycle at the time of our inspection. It was observed to have sustained with damages due to the accident collision.

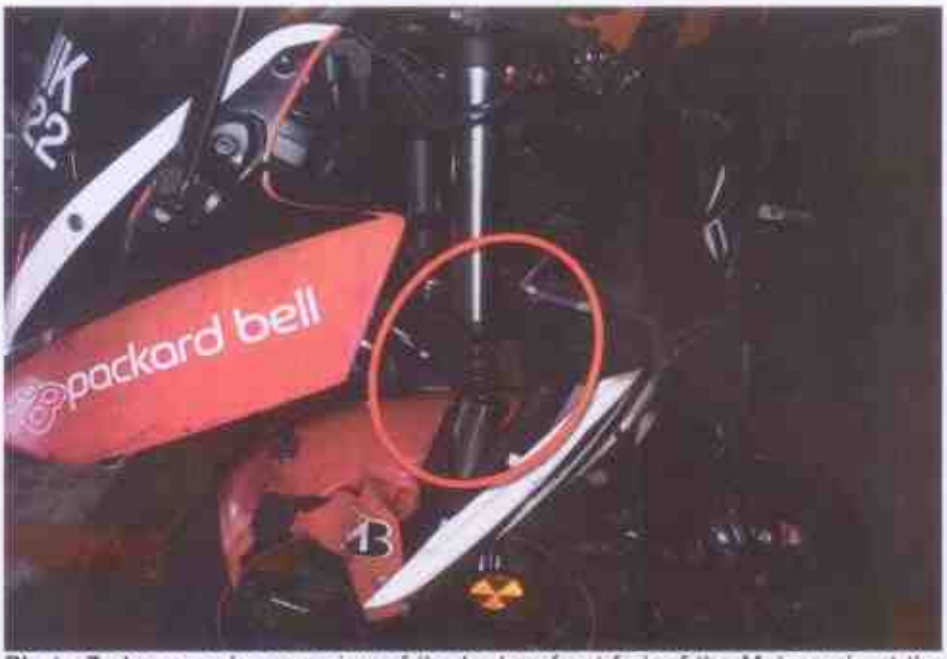


Photo 7 shows a close-up view of the broken front fork of the Motorcycle at the time of our inspection. It was observed to be damage due to the accident collision.

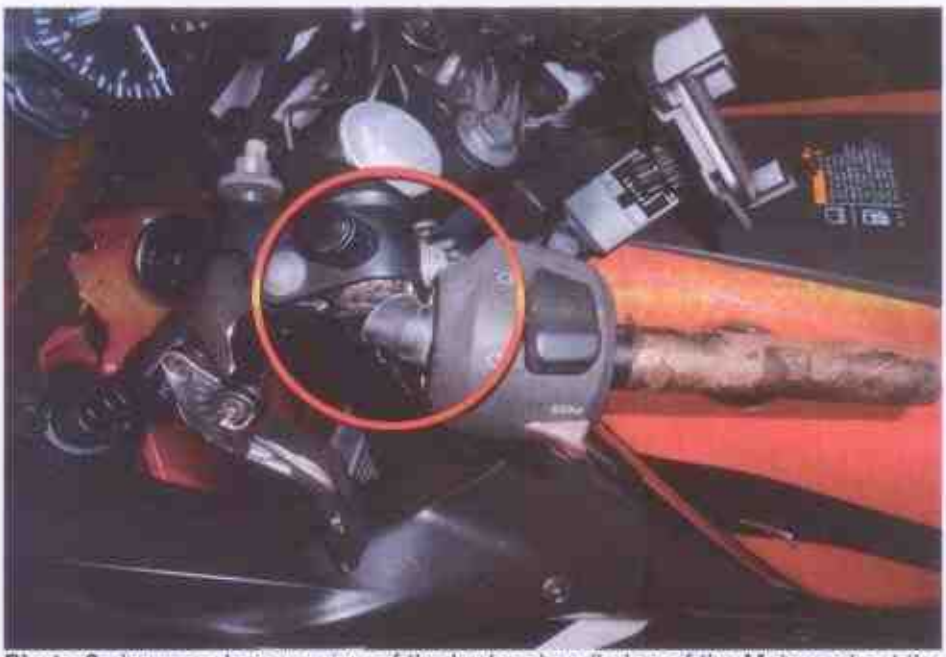


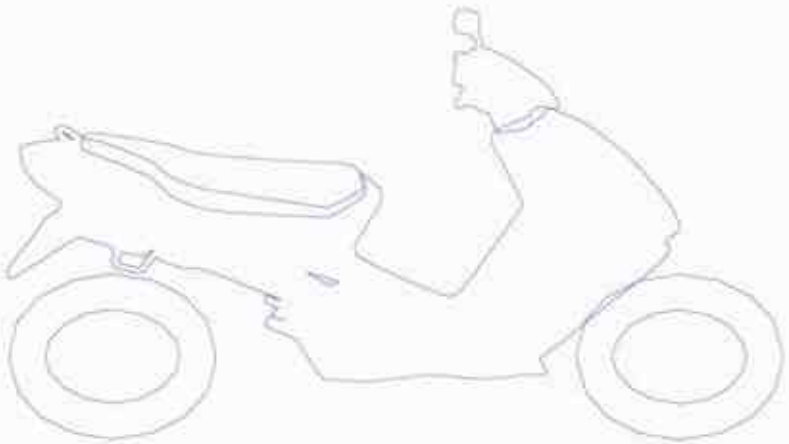
Photo 8 shows a close-up view of the broken handle bar of the Motorcycle at the time of our inspection. It was observed to be damaged due to the accident collision.

Tyres and Wheel Rims

7. The condition of the Motorcycle's rear tyre was observed to be in serviceable condition. The tread pattern of the rear tyre 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 rear tyre.

8. As for the front tyre it was found to be deflated with broken front rim likely due to the accident impact. However, the tread pattern of the front tyre 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 front tyre.

9. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-



Metzeler Sportec Street
150/60-17 (6mm)

Metzeler Sportec Street
120/70-17 (6mm)-(Deflated)-
(Wheel rim broken)

10. The rear tyre was observed to be wrapped around alloy wheel rims that were found to be without any significant damage. It was found to be in serviceable condition with adequately inflated for operational purpose.

11. As for the front wheel rim, it was noted to have sustained with damages (broken) at time of our inspection. The front tyre was found to be deflated due to the broken wheel rim as a result of the accident's collision. See photo 9 to 12 below.

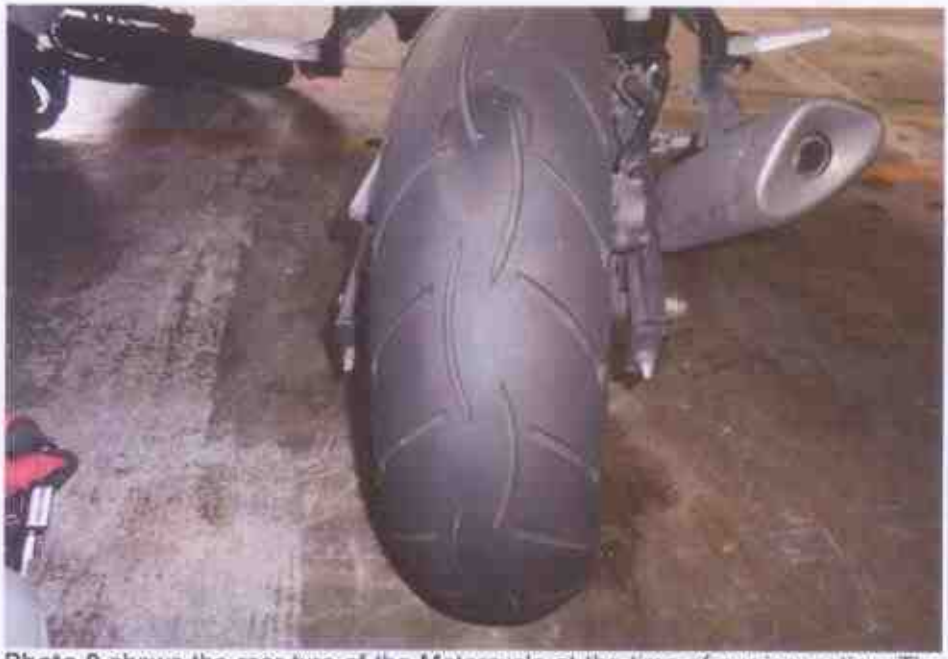


Photo 9 shows the rear tyre of the Motorcycle at the time of our inspection. The rear tyre was observed to be in serviceable condition with remaining tread depth of approximately 6mm. The tyre was also observed to be sufficiently inflated for vehicular operation. There was no significant damage observed on the rear wheel rim & tyre.

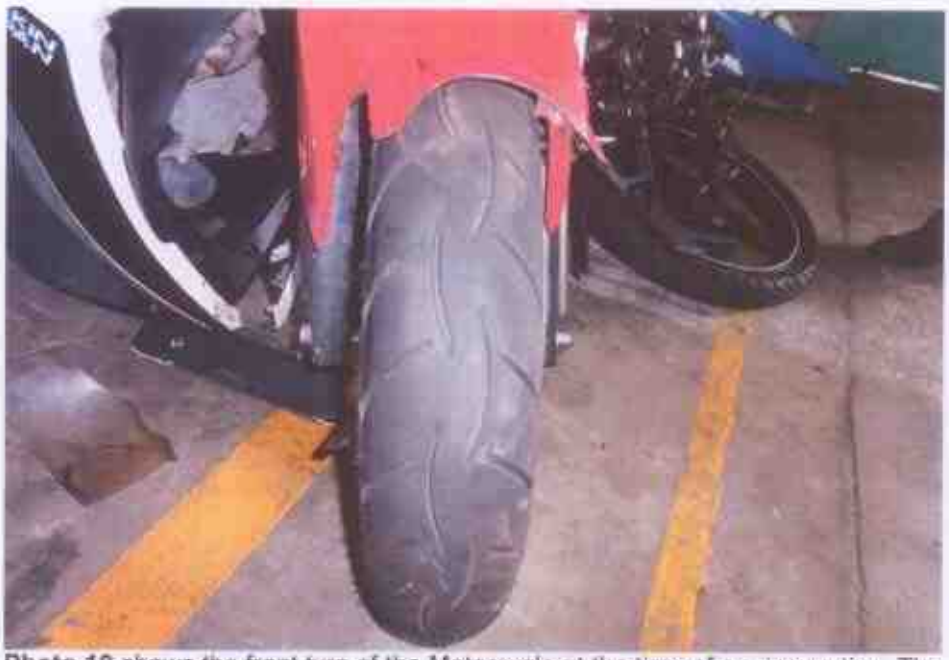


Photo 10 shows the front tyre of the Motorcycle at the time of our inspection. The pattern of the tread was clearly visible. There was no tear, burst mark(s) and/or punctured hole(s) on the sidewalls as well as across the tread of the front tyre with remaining tread depth of approximately 6mm. However, it was observed to be deflated as a result of the accident.

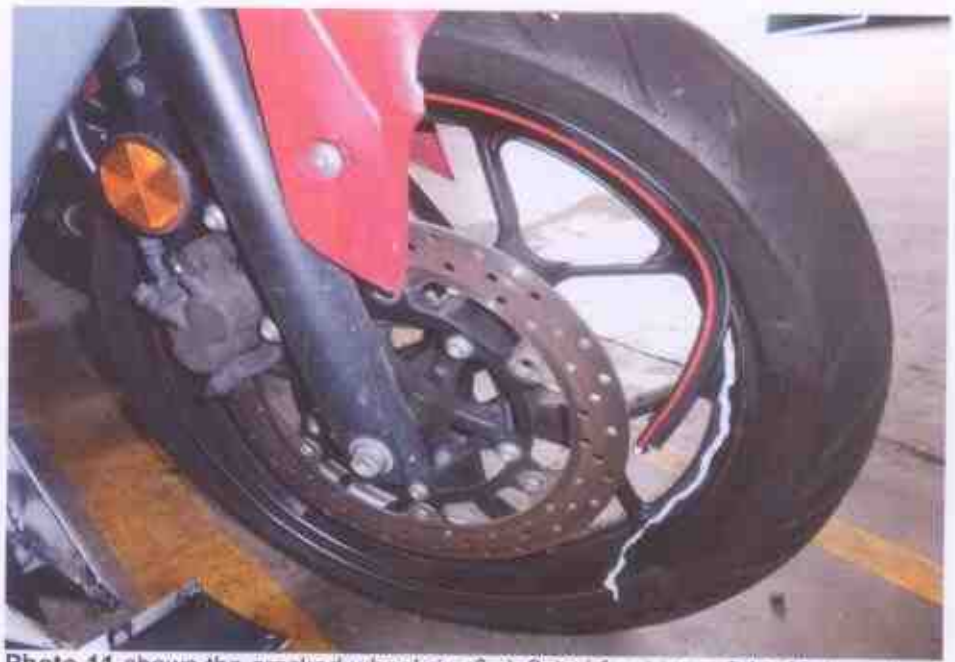


Photo 11 shows the cracked wheel rim & deflated front tyre of the Motorcycle at the time of our inspection.

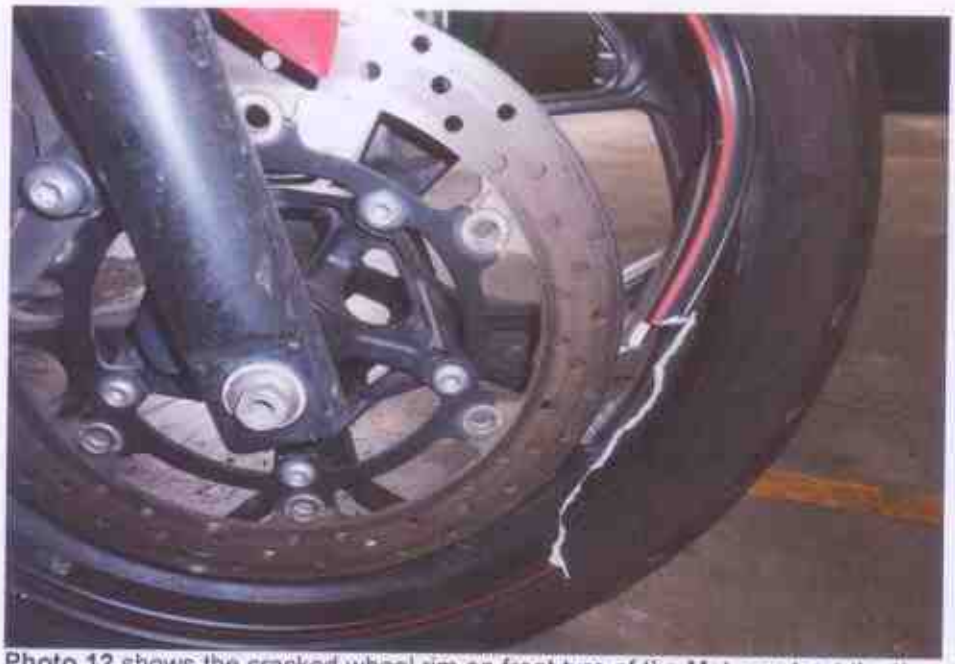


Photo 12 shows the cracked wheel rim on front tyre of the Motorcycle at the time of our inspection.

Engine & Drive Train

12. 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.

13. 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 13 – 16 below.

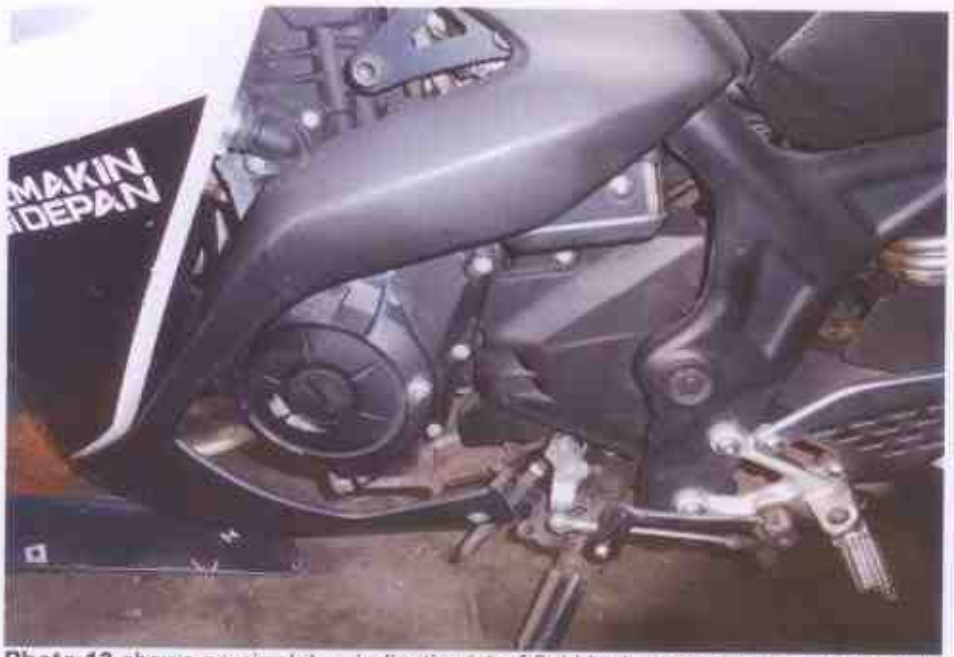


Photo 13 shows no sign(s) or indication(s) of fluid leakage stain observed around the engine undercarriage area of the Motorcycle.

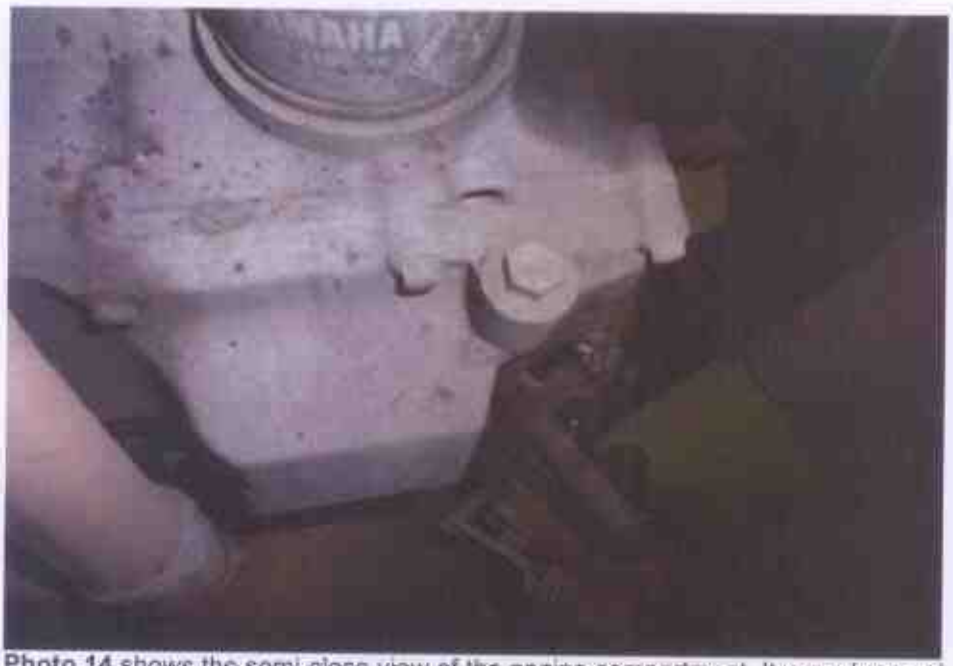


Photo 14 shows the semi-close view of the engine compartment. It was observed to be intact & undamaged unaffected by the accident's impact.

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.

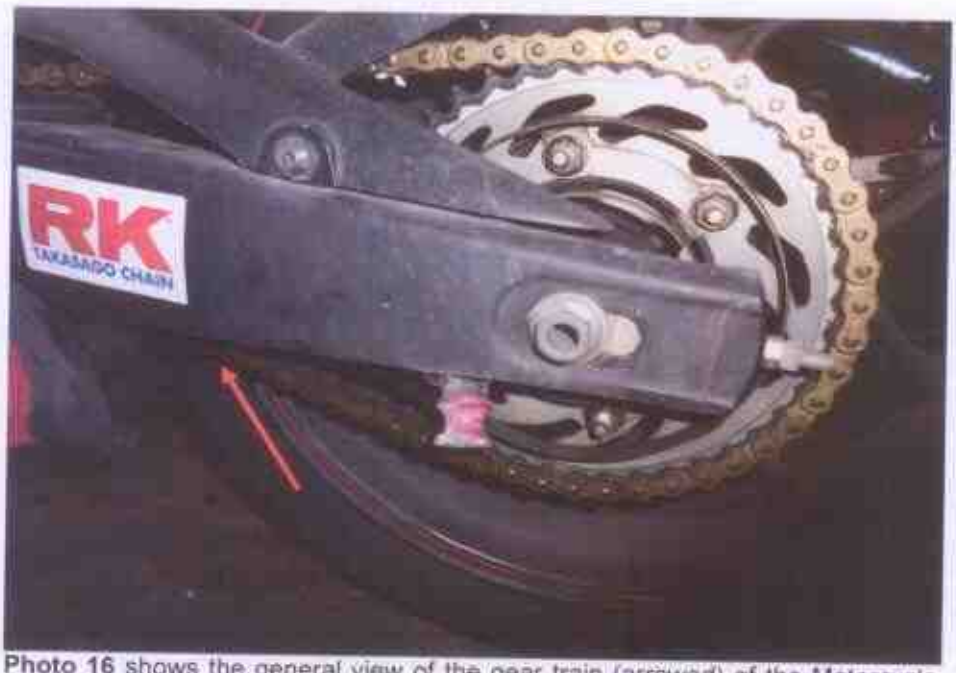


Photo 16 shows the general view of the gear train (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes. Free play tension was also observed & found adequately acceptable.

Steering System & Braking System

14. 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 & front fork. The handle bar was found to be broken & the front fork was observed to be buckled inwards as a result of the accident, hence causing the whole steering system to be in an abnormal condition.

15. 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.

16. 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.

17. 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 17 - 25 below.

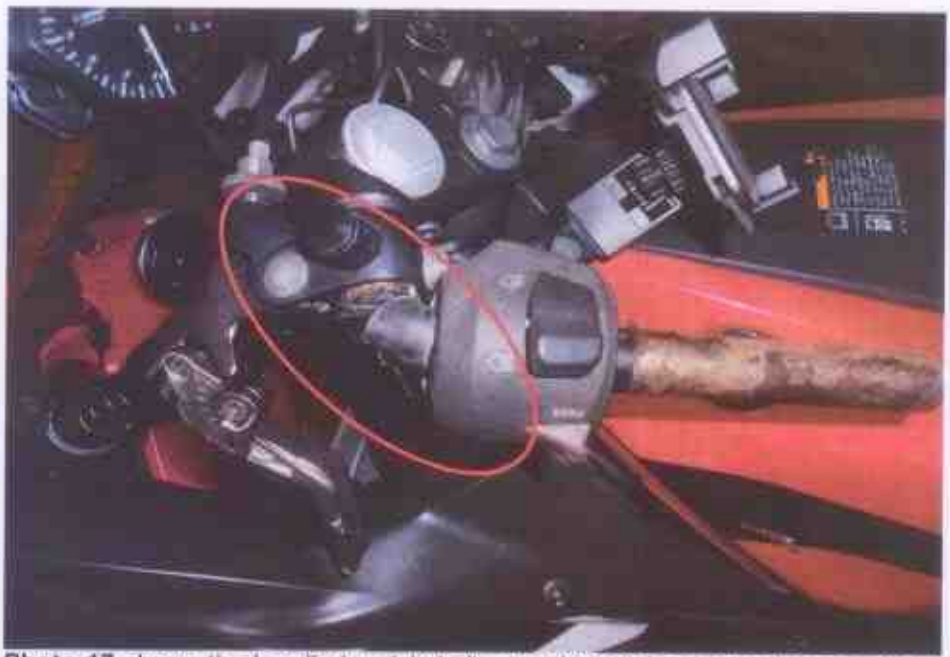


Photo 17 shows the handle bar (circled) was observed to be broken as a result of the accident. Hence, we are not able to conduct any tests on the steering system of the Motorcycle.

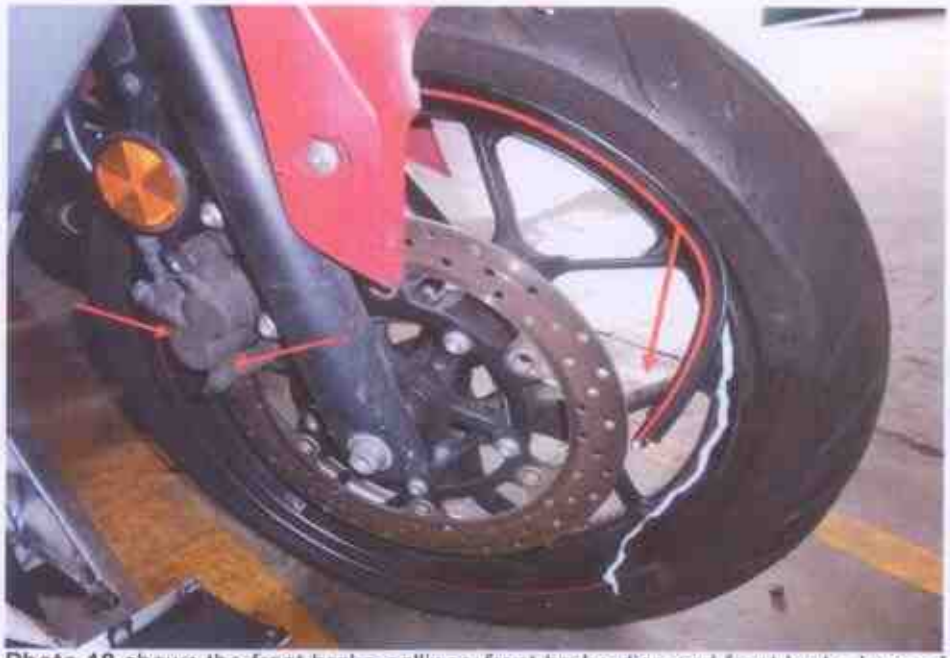


Photo 18 shows the front brake calliper, front brake disc and front brake hose of the Motorcycle (arrowed), which are all part of the components in the front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

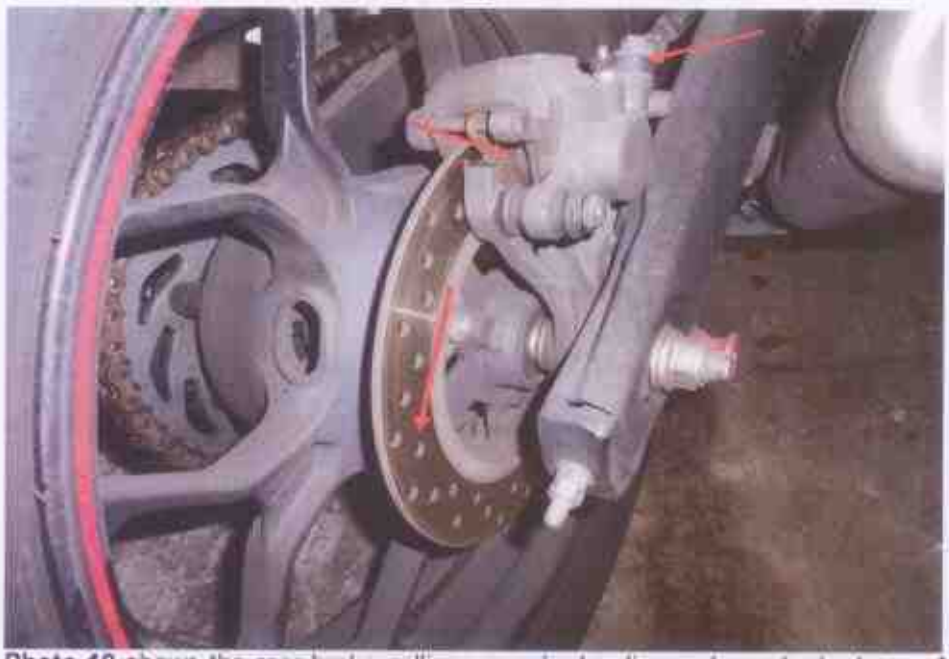


Photo 19 shows the rear brake calliper, rear brake disc and rear brake hose of the Motorcycle (arrowed), which are all part of the components in the front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

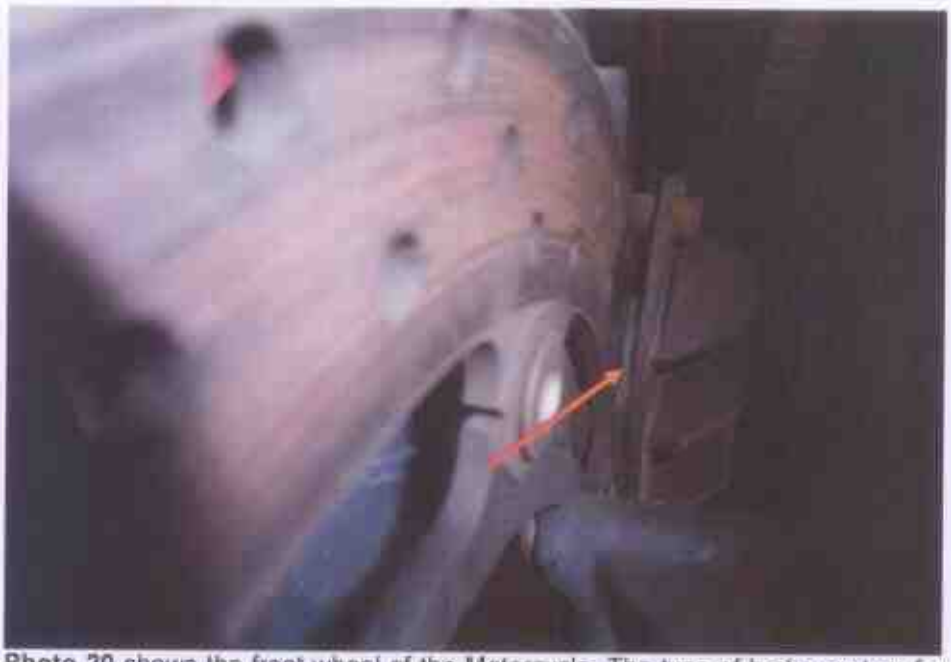


Photo 20 shows the front wheel of the Motorcycle. The type of brake system for the rear wheel was of hydraulic type, controlled by the hand brake lever of the Motorcycle. Our checks of the calliper (arrowed) & brake pad which are all part of the components in the rear brake system of the Motorcycle reveal all to be intact and without damage.

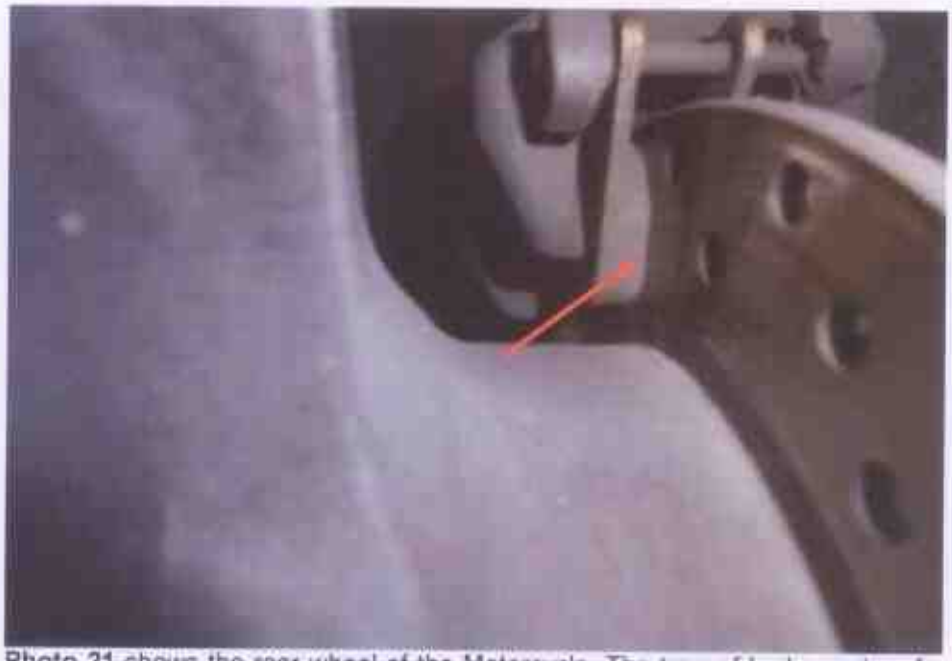


Photo 21 shows the rear wheel of the Motorcycle. The type of brake system for the rear wheel was of hydraulic type, controlled by the brake foot pedal of the Motorcycle. Our checks of the calliper (arrowed) & brake pad which are all part of the components in the rear brake system of the Motorcycle reveal all to be intact and without damage.

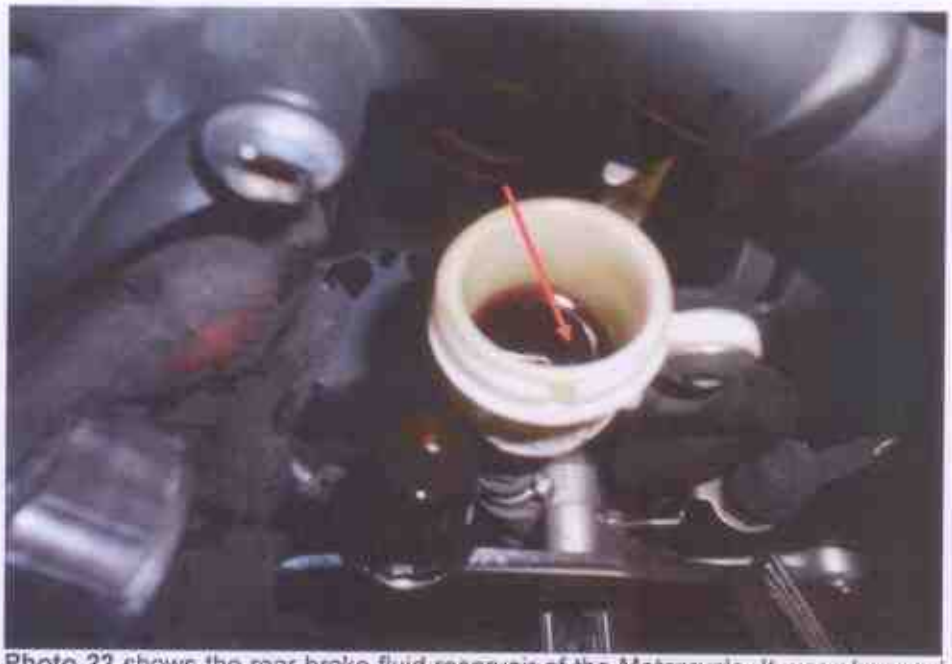


Photo 22 shows the rear brake fluid reservoir of the Motorcycle. It was observed to be of sufficient level without any contamination at time of our inspection.

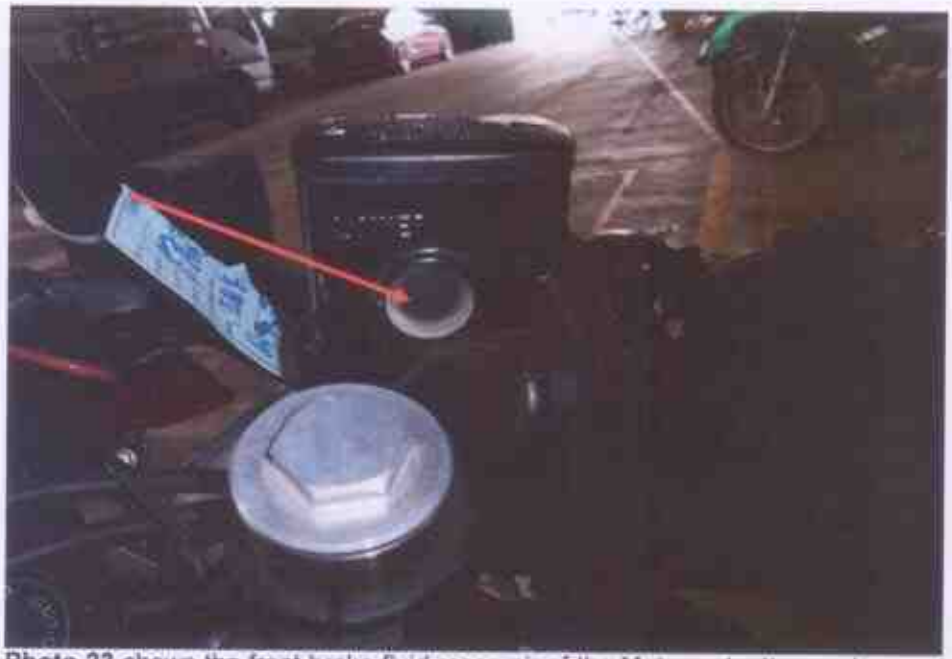


Photo 23 shows the front brake fluid reservoir of the Motorcycle. It was observed to be of sufficient level without any contamination at time of our inspection.

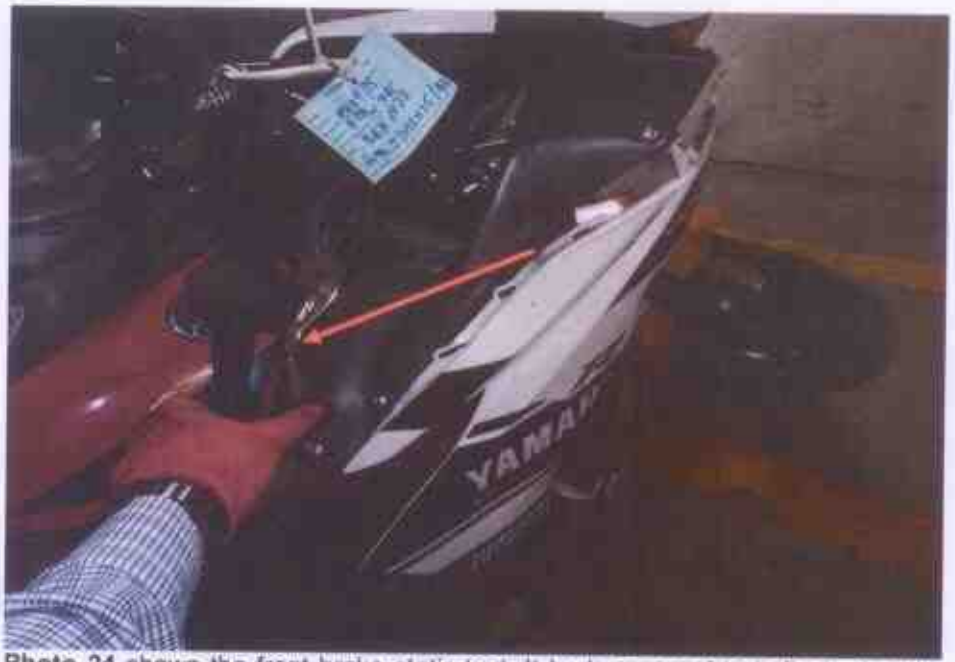


Photo 24 shows the front brake static test. It had appeared to indicate that the brake system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon gripping the hand brake lever.

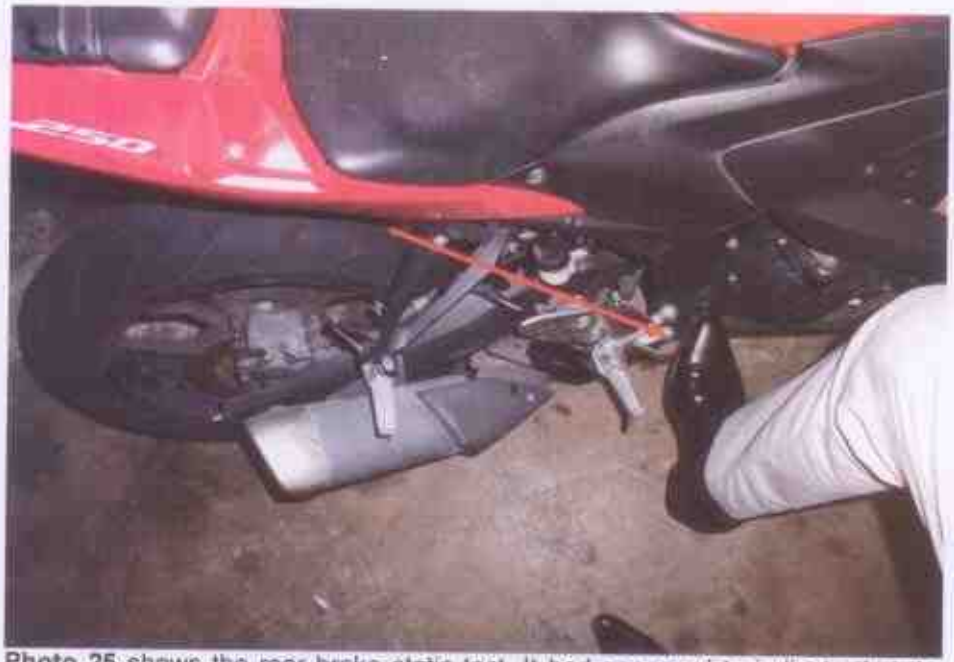


Photo 25 shows the rear brake static test. It had appeared to indicate that the brake system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon stepping on the rear brake foot paddle. This would indicate that there was no abnormality in the brake system also on the rear brake drum mechanical parts.

Conclusion

18. 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.

19. 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.

20. The condition of the Motorcycle's rear tyre was observed to be in serviceable condition. The tread pattern of the rear tyre 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 rear tyre. Its tread depth was measured & found to be around approximately 6mm.

21. As for the front tyre, it was found to be deflated likely due to the broken wheel rim as a result of the accident's collision. However, the tread pattern of the front tyre was clearly visible with tread depth of 6mm. 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 front tyre.

22. 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)