



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/06211/2017
Our Ref :CI/TPD18008709/Z

28th February 2018

Fatal Accident Investigation Team

Traffic Police Department

Singapore Police Force

10 Ubi Avenue 3

Singapore 408865

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBH 8168G

1. We refer to your request dated 12th February 2018 to conduct a physical inspection of a motorcycle bearing registration number FBH 8168G (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 28th January 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 27th February 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 not recorded due to a flat battery.
5. The Motorcycle was observed to have sustained relatively minor damages at the frontal portion and its right side. The body parts that were found to have been damaged include its front right hand signal lamp, dented right side foot rest, broken right hand brake lever, damage right hand accelerator throttle, minor scratches at right hand side fuel tank and exhaust muffler cover amongst others. Its front fork assembly was also observed to be bent slightly to the left as a result of the accident.
6. This was likely due to the consistency of the accident's case facts that the Motor Cycle rider was travelling along Seletar West Link towards Seletar North Link believed to have lost control of his Motor Cycle while negotiating a left bend. See photo 1 to 9 below.

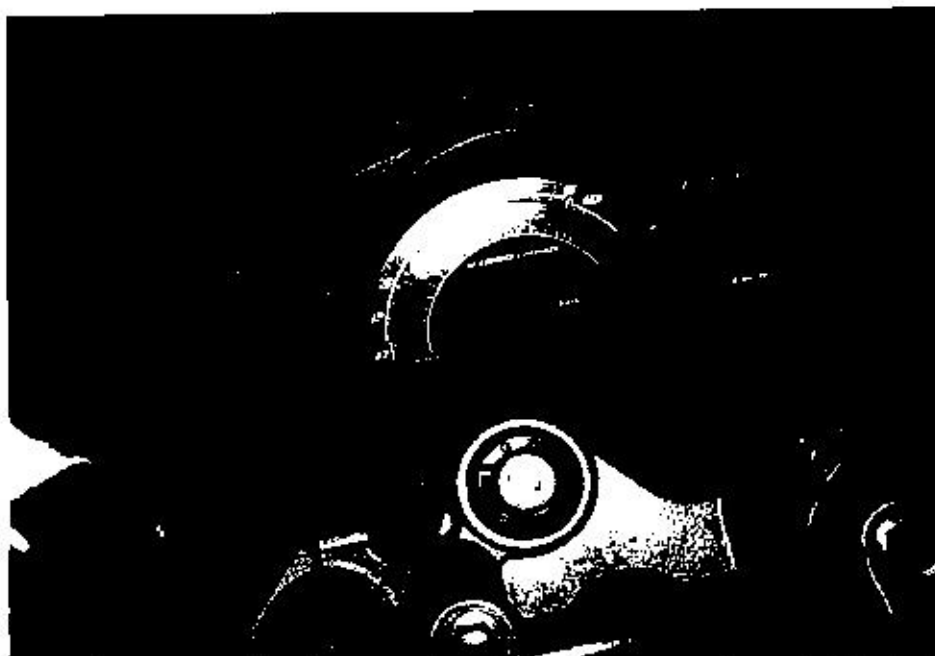


Photo 1 shows the mileage at the time of inspection was not recorded due to a flat battery.

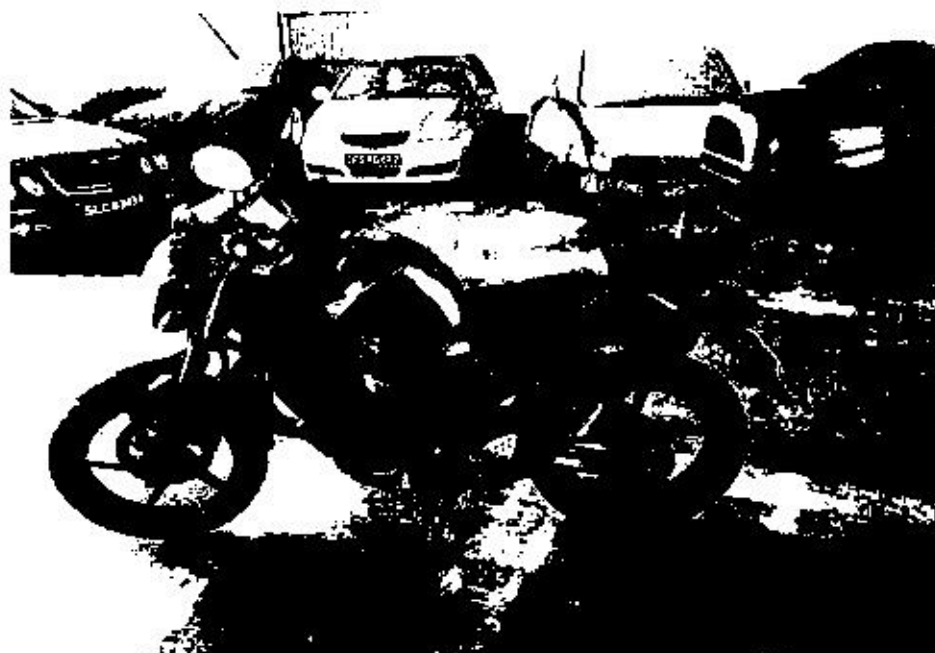


Photo 2 shows a general view of the left side body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be in good general condition unaffected by the accident.

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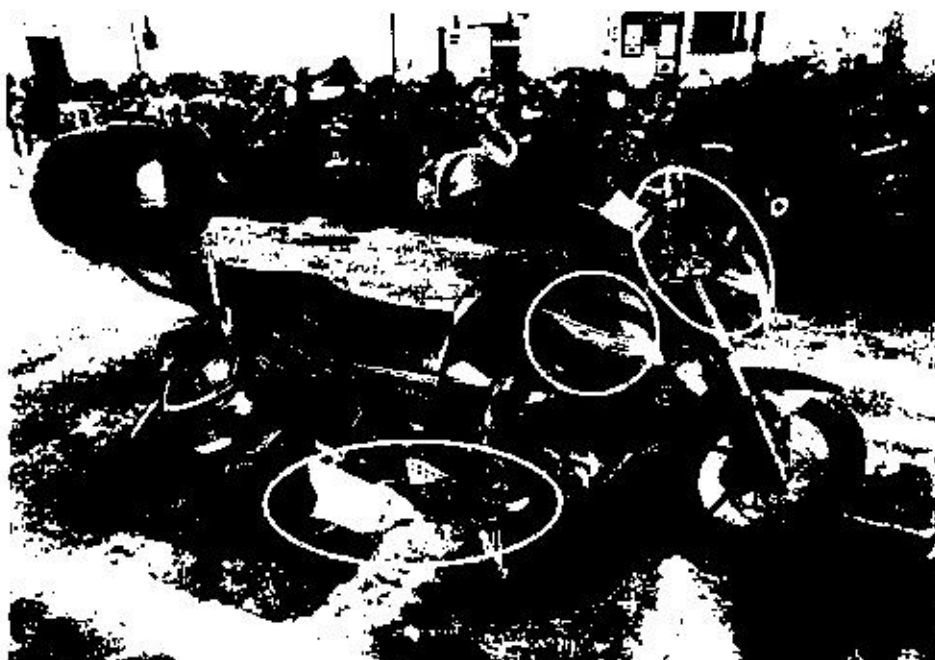


Photo 3 shows a general view of the right side body of the Motorcycle at the time of our inspection. The body parts that were found to have been damaged include its front right hand signal lamp, dented right side foot rest, broken right hand brake lever, damage right hand accelerator throttle, minor scratches at right hand side fuel tank and exhaust muffler cover amongst others. Its front fork assembly was also observed to be bent slightly to the left as a result of the accident.



Photo 4 shows a general view of the frontal portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained with relatively minor impact due to the accident collision. Which includes its front fork assembly was also observed to be bent slightly to the left.

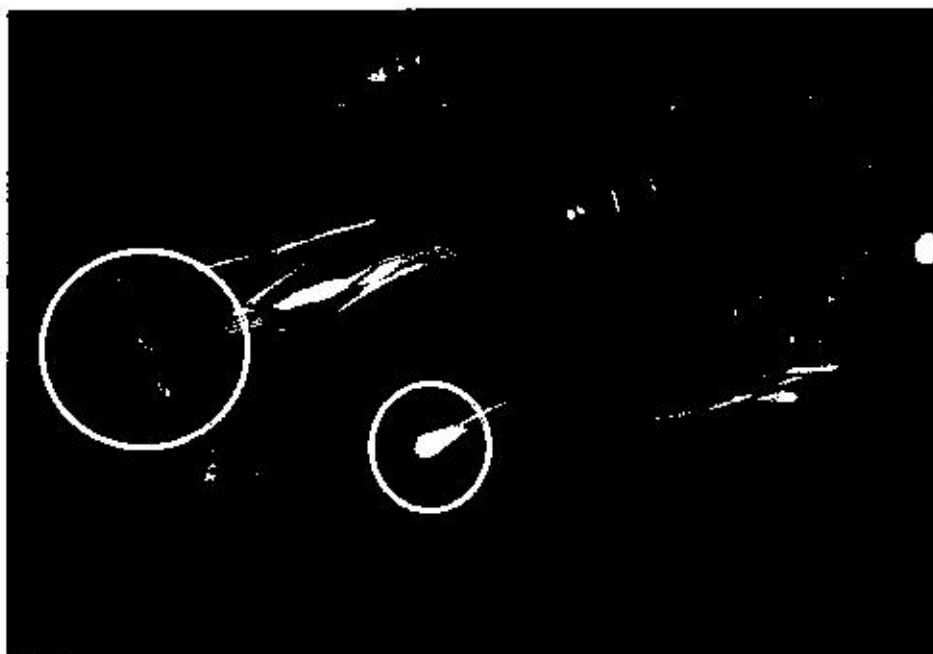


Photo 5 shows a close-up view of the broken brake lever & damage accelerator throttle of the Motorcycle due to the accident collision.

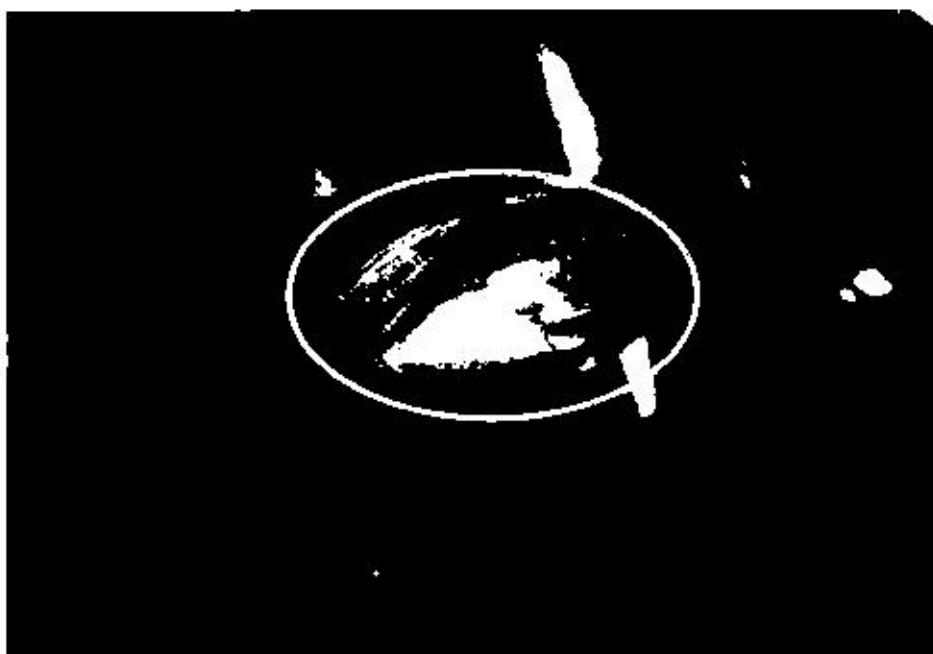


Photo 6 shows a close-up view of the minor damage of the right signal lamp of the Motorcycle due to the accident collision.



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Photo 7 shows a close-up view of the minor scratches on the fuel tank of the Motorcycle due to the accident collision.

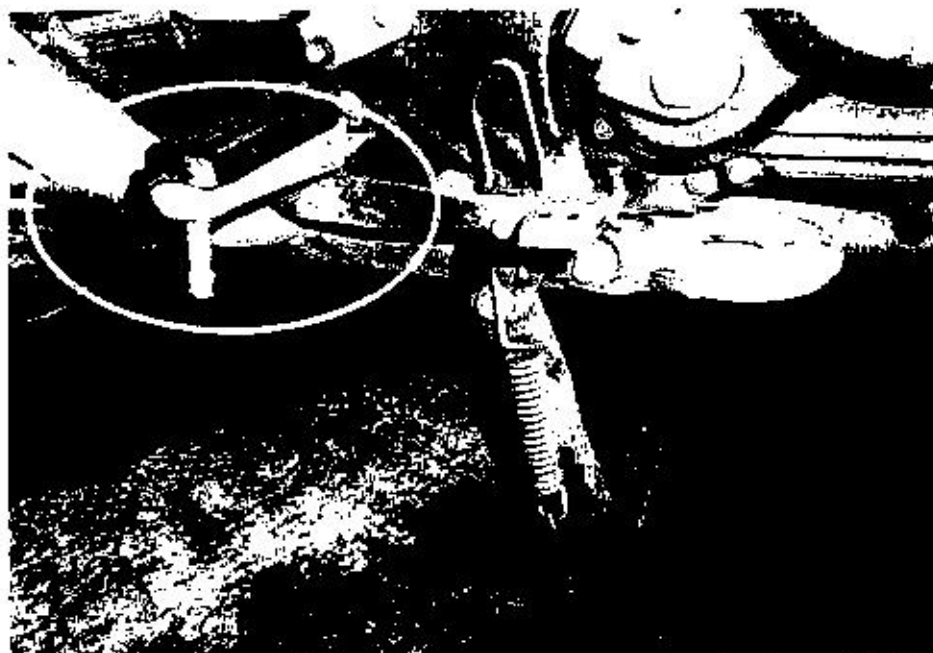


Photo 8 shows a close-up view of the minor damage on the foot rest of the Motorcycle due to the accident collision.

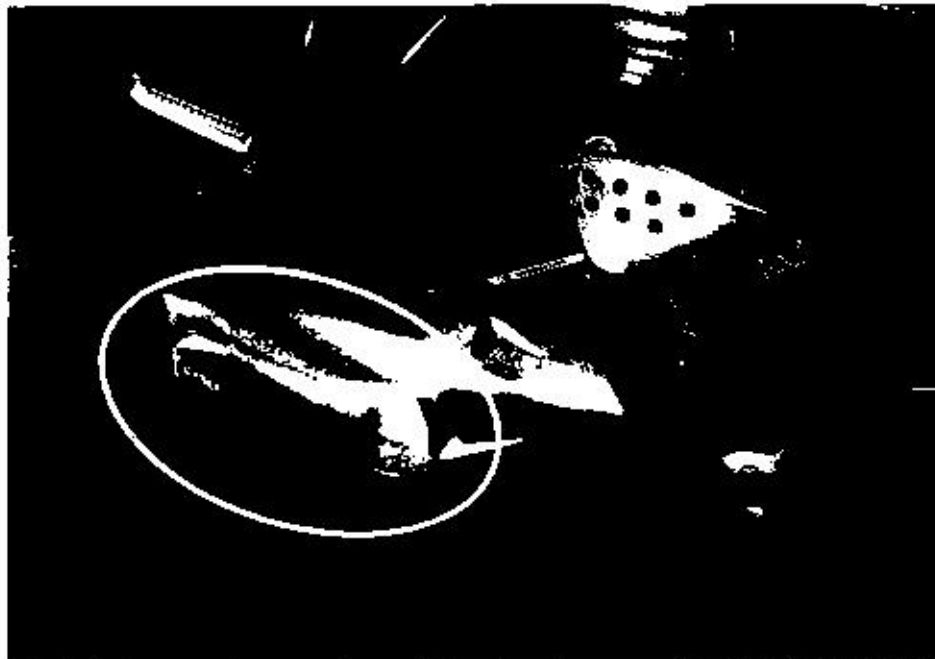
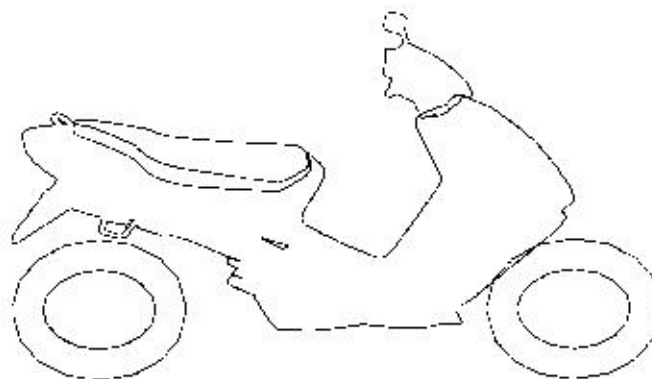


Photo 9 shows a close-up view of the minor damage exhaust muffler cover of the Motorcycle due to the accident collision.

Tyres and Wheel Rims

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



Pirelli 140/70 - 17 (6mm)

Pirelli 100/80 - 17 (4mm)



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8. The front & 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 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. 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 – 15 below.



Photo 12 shows the engine underside view. There was also no sign(s) or indication(s) of fluid leak observed around the engine area of the Motorcycle.



Photo 13 shows the engine area view. There was also no sign(s) or indication(s) of fluid leak observed around the engine area of the Motorcycle.

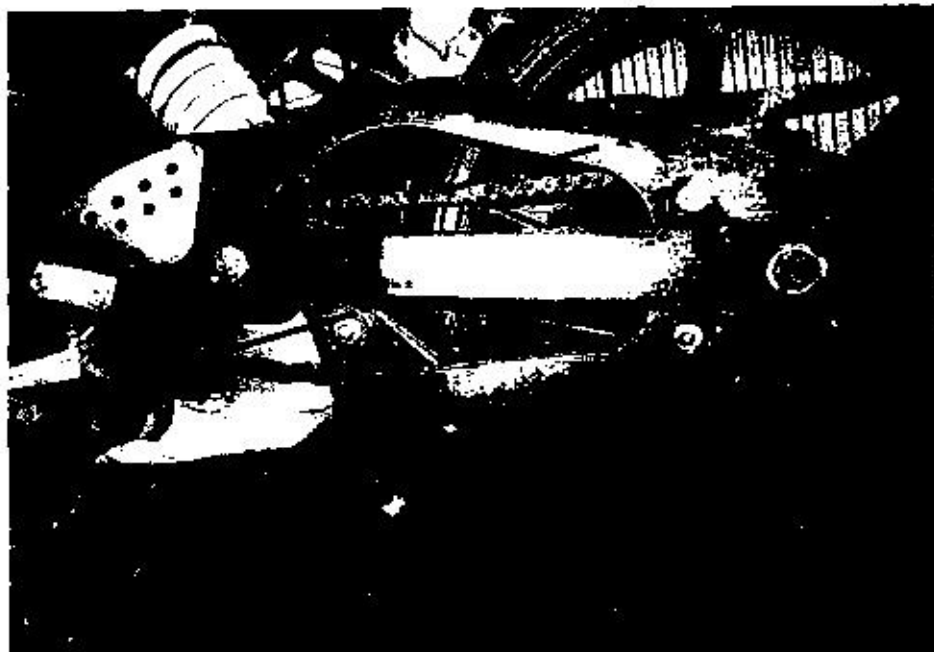


Photo 14 shows the general view of the gear train (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.



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

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 front fork. Its front fork assembly was observed to be bent slightly to the left as a result of the accident.
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). 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 and without damage. There was also no visible tear or cut observed on the connecting hoses and cables.
13. Although our visual inspection on the mechanical components revealed no damages was affecting the components. Further investigation on the front brake fluids from the brake fluid reservoir found that it was contaminated. Upon dismantling of the front brake reservoir cover, a sludge like substance noted to be filling the brake fluid reservoir.

14. Hydraulic brake discs feature a closed system of hoses and reservoirs containing special hydraulic brake fluid to operate the brakes. When the lever is activated, a plunger pushes the fluid through the hoses and into the calliper where the pads are pushed onto the rotor, stopping the Motorcycle.
15. However, this contamination was likely due to moisture developing in the system after a period of time. Heat element might contribute to this reaction. Hence, conclusively the front brake was likely not in serviceable condition prior the material time of the accident.
16. Static brake test however was conducted on the Motorcycle rear brake had appeared to indicate that it 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 leakage of pressure/vacuum in the rear brake drum mechanical parts.
17. For this case, we was not able to carry out any operational tests to the steering system and brake system of the Motorcycle due to the damage of its front fork & the contaminated front brake fluid, which had rendered the Motorcycle's abnormality for the operational tests. See photo 16 - 22 below.



Photo 16 shows the front fork was observed to have sustained with minor misalignment as a result of the accident. Hence, we are not able to conduct any tests on the steering system of the Motorcycle.



Photo 17 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 18 shows the front brake pad of the Motorcycle (arrowed). Our visual checks of the front brake pad had revealed that it is in serviceable condition.



Photo 19 shows the opening of the front brake fluid reservoir of the Motorcycle (arrowed) prior our visual inspection.



Photo 20 shows after opening of the front brake fluid reservoir of the Motorcycle (arrowed). We found that the brake fluid turned into sludge like substance. Hence, indicates it had been contaminated prior to the accident.



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Photo 21 shows the front brake static test. It was observed to be not in serviceable condition at time of our inspection. The brake lever was found to be stuck likely due to the accident's impact.



Photo 22 shows the rear brake static test of the Motorcycle. The type of brake system for the rear wheel was of mechanical type, controlled by the brake foot pedal of the Motorcycle. Our static brake test revealed that the rear brake system of the Motorcycle was in serviceable condition without damage.



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 rear brake system was however found to be in serviceable condition. As for the front brake fluid, it was found to be contaminated at time of our inspection.
19. For this particular case, we are of the opinion that the front brake fluids contamination was likely due to moisture developing in the system after a period of time. Heat element might contribute to this reaction and caused contamination to the brake fluid turning it into sludge like substance. Hence, conclusively the contaminated front brake fluids could have contributed to the accident by means of chocking the braking system and making it ineffective at the material time of the accident.
20. 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.
21. 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 damages of its front fork (as a result of the accident), & the contaminated front brake fluid, which had rendered the Motorcycle's abnormality for the operational tests.

Rohaizal A. Rahim

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