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Your Ref: TPIP/04512/2023 11 July 2023
Our Ref : CI/TPD23005734/N

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE JTR 3354

1. We refer to your request on 7 March 2023 to conduct a physical inspection of a motorcycle bearing registration number JTR 3354 (herein referred to as **"Motorcycle"**), which was involved in a fatal road traffic accident on 14 February 2023.

2. The objective of the inspection is to 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 10 July 2023 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 73, 310km.

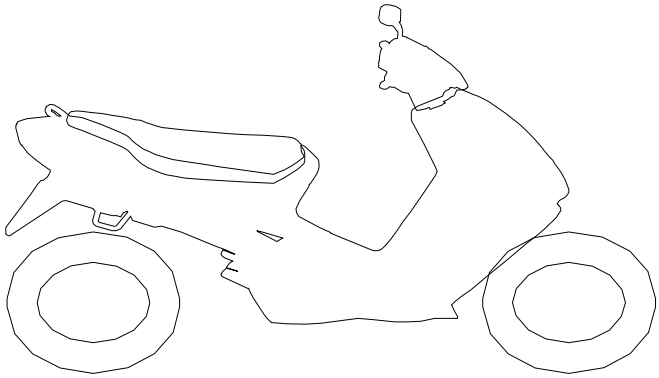
5. The Motorcycle had sustained damages all around. Body parts that were found to have been damaged include its headlight assembly, front fork assembly, front cowling, front mudguard, handlebar ends, side mirrors, clutch lever, front brake lever, front basket, side cowlings, gear shift pedal, left front footrest, right rear side cover, top box rack, tail light assembly, rear mudguard and exhaust muffler heat shield, amongst others.

Tyres and Wheel Rims

6. The condition of the front tyre of the Motorcycle was observed to be in serviceable condition. 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. The tread pattern of the front tyre was clearly visible. The front tyre was observed to be sufficiently inflated for vehicular operation.

7. We found the rear tyre to be deflated most likely as a result of the accident. However we did not observe any tear and/or burst mark(s) on the sidewalls as well as across the tread of the rear tyre. The tread pattern of the rear tyre was clearly visible.

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



Maxxis 70/90 - 17 (2mm)
(Deflated)

Maxxis 70/80 - 17 (4mm)

9. The 2 tyres were wrapped around alloy wheel rims. At the time of our inspection, we did not observe any visible damage on the front wheel rim of the Motorcycle. However we did observe that the rear wheel rim was bent. See photos 1 – 20 below.

Photo 1 shows the speedometer gauge of the Motorcycle. The mileage of the Motorcycle at the time of our inspection was 73, 310km (circled).

Photo 2 shows a general view of the rear portion of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around.

Photo 3 shows a general view of the frontal portion of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around.

Photo 4 shows a general view of the right body of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around.

Photo 5 shows a general view of the rear portion of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around. Body parts that were found to have been damaged include its headlight assembly, front fork assembly, front cowling, front mudguard, handlebar ends, side mirrors, clutch lever, front brake lever, front basket, side cowlings, gear shift pedal, left front footrest, right rear side cover, top box rack, tail light assembly, rear mudguard and exhaust muffler heat shield, amongst others.

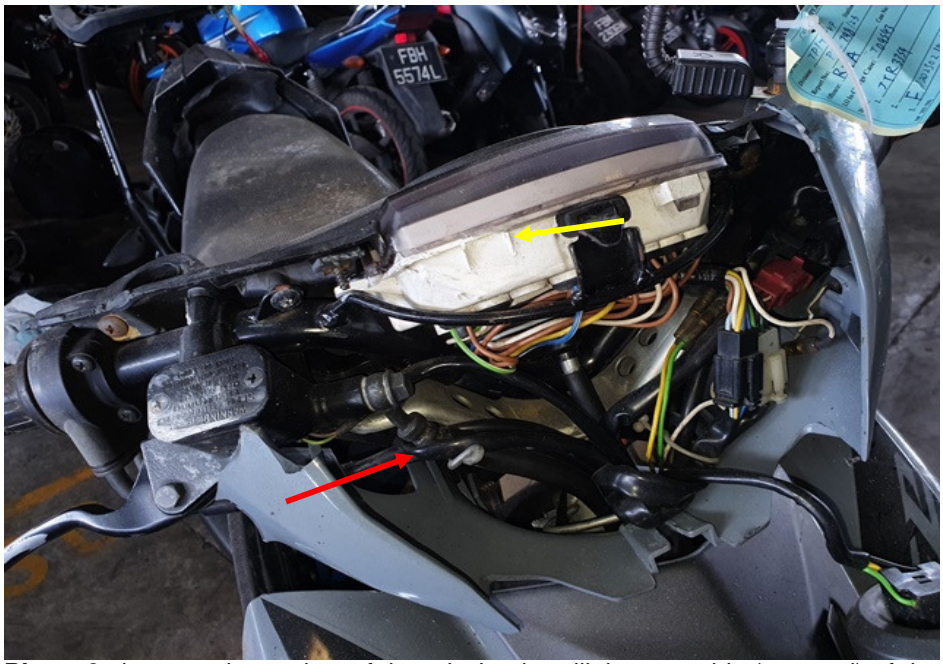


Photo 6 shows a closer view of the missing headlight assembly (arrowed) of the Motorcycle at the time of our inspection.

Photo 7 shows a closer view of the grazed front brake lever and right handlebar end of the Motorcycle (arrowed) at the time of our inspection.

Photo 8 shows a closer view of the grazed front mudguard of the Motorcycle (arrowed) at the time of our inspection.

Photo 9 shows a closer view of the damaged left side mirror and left handlebar end of the Motorcycle (arrowed) at the time of our inspection.

Photo 10 shows a closer view of the grazed front cowling of the Motorcycle at the time of our inspection (arrowed).

Photo 11 shows a closer view of the grazed left cowling of the Motorcycle at the time of our inspection (arrowed).

Photo 12 shows a closer view of the cracked front basket of the Motorcycle at the time of our inspection (arrowed).

Photo 13 shows the gear shift pedal and left front footrest of the Motorcycle which had sustained damage at the time of our inspection (arrowed).

Photo 14 shows a closer view of the missing right rear side cover of the Motorcycle at the time of our inspection (arrowed).

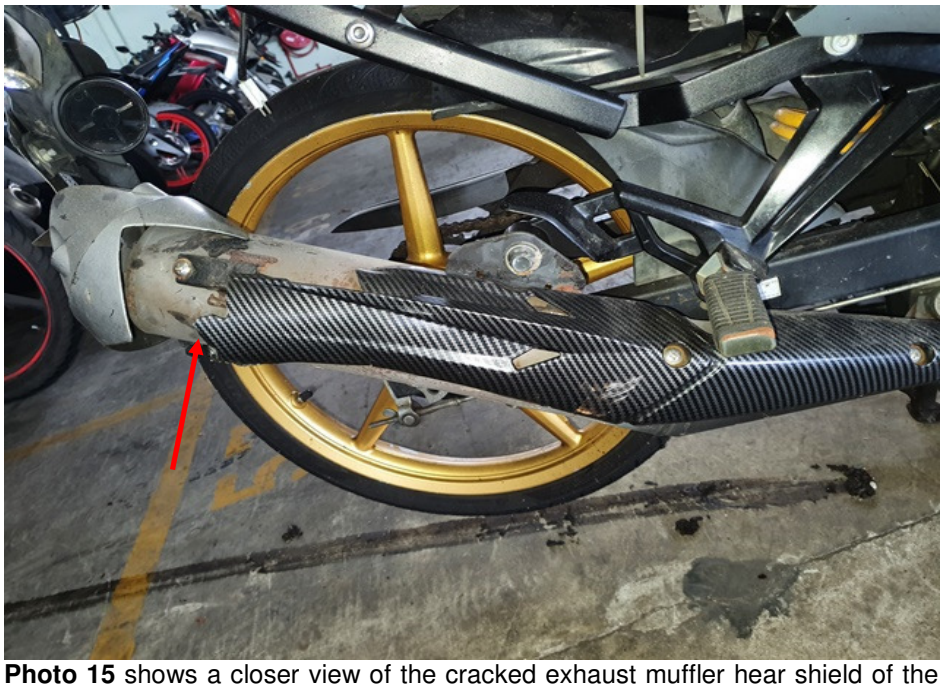


Photo 15 shows a closer view of the cracked exhaust muffler hear shield of the Motorcycle (arrowed) at the time of our inspection.

Photo 16 shows the bent top box rack (arrowed) of the Motorcycle at the time of our inspection.

Photo 17 shows the dislodged rear mudguard (arrowed) and missing tail light (circled) of the Motorcycle at the time of our inspection.

Photo 18 shows the condition of the Motorcycle's front tyre. The front tyre was observed to be in serviceable condition with remaining tread depth of approximately 4mm. 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.

Photo 19 shows the condition of the Motorcycle's rear tyre. The rear tyre was observed to be in serviceable condition with remaining tread depth of approximately 2mm. 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. However the rear tyre was also observed to be deflated.

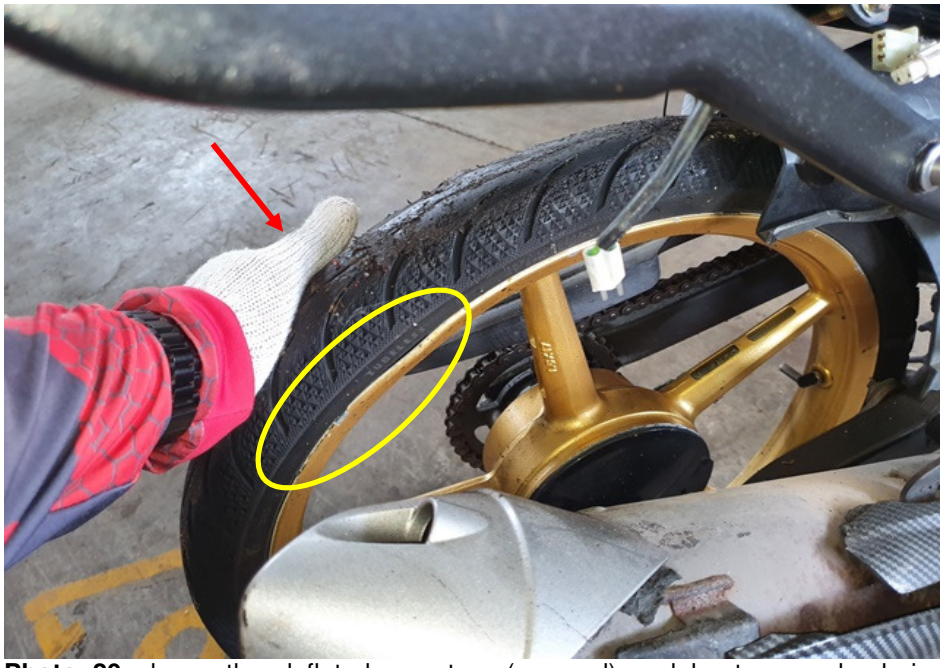


Photo 20 shows the deflated rear tyre (arrowed) and bent rear wheel rim (circled) of the Motorcycle at the time of our inspection.

Engine & Drive Train

10. Upon examination of the Motorcycle's engine area, we had observed that the various right 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 right engine area of the Motorcycle. The left engine cover was found to be cracked. However there was no fluid leak and/or fluid stain found around the left engine area of the Motorcycle.

11. The gear train which rotates the rear wheel of the Motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. See photos 21 – 24 below.

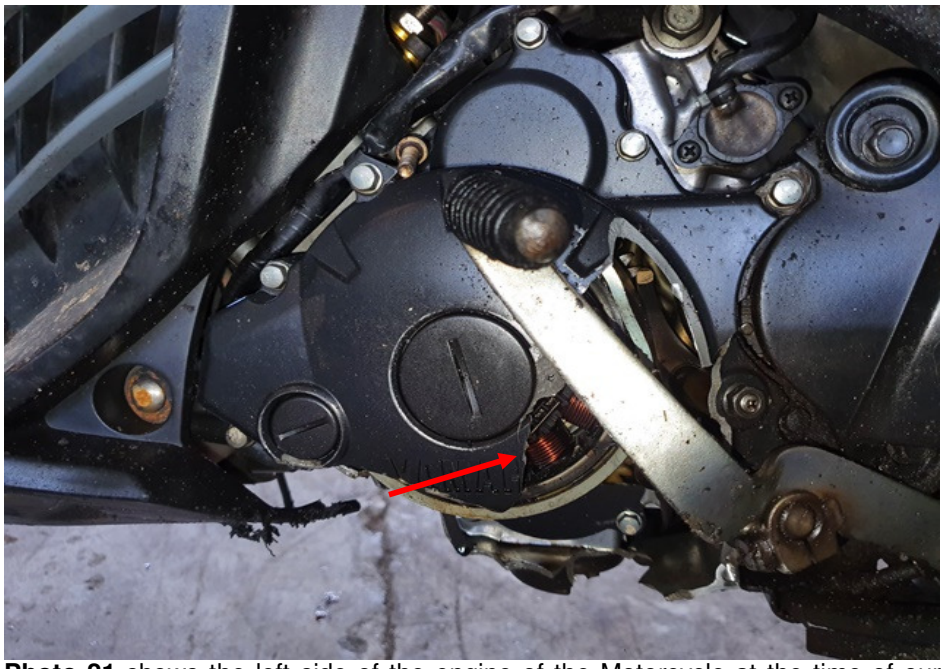


Photo 21 shows the left side of the engine of the Motorcycle at the time of our inspection. The left engine cover was found to be cracked (arrowed). However there was no fluid leak and/or fluid stain found around the left engine area of the Motorcycle.

Photo 22 shows the right side of the engine of the Motorcycle at the time of our inspection. The various engine related parts and components were found to be intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the right engine area of the Motorcycle.

Photo 23 shows the gear train (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes. The gear train rotates the rear wheel of the Motorcycle.

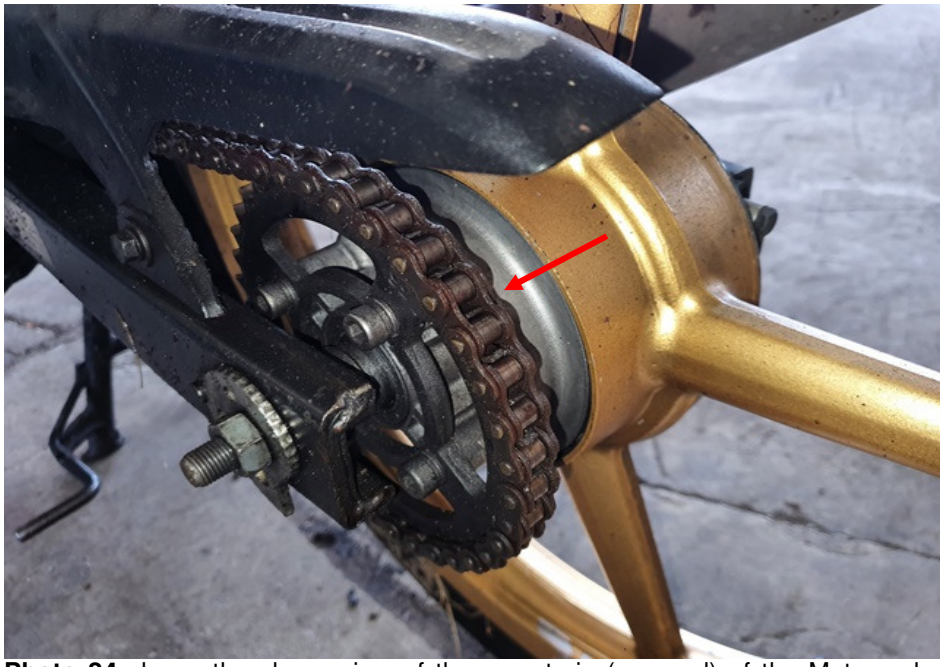


Photo 24 shows the closer view of the gear train (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.

Steering System & Braking System

12. For this case, we were not able to conduct any test(s) on the steering system of the Motorcycle due to the damage of its fork assembly. The front forks were found to be bent as a result of the accident.

13. 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 caliper, drum, brake lever and brake foot pedal, revealed all to be intact and without damage. There was also no leakage of brake fluid observed along the front brake hose. This was from the respective front brake fluid reservoir to the front brake caliper of the Motorcycle. The brake fluid for the front brake was found to be of sufficient level for operating purposes. However the brake fluid was found to be contaminated. There was also no visible tear or cut observed on the connecting hoses and cables.

14. Static brake tests conducted on the Motorcycle had appeared to indicate that the front brake system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon pressing the front brake lever. This would indicate that there's no leakage of pressure/vacuum in the front brake system.

15. 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 front forks, which had rendered the Motorcycle immobile for the operational tests. We were not able to push the Motorcycle manually forward and backward, simulating movement of the Motorcycle, for the operational tests. See photos 25 – 29 below.

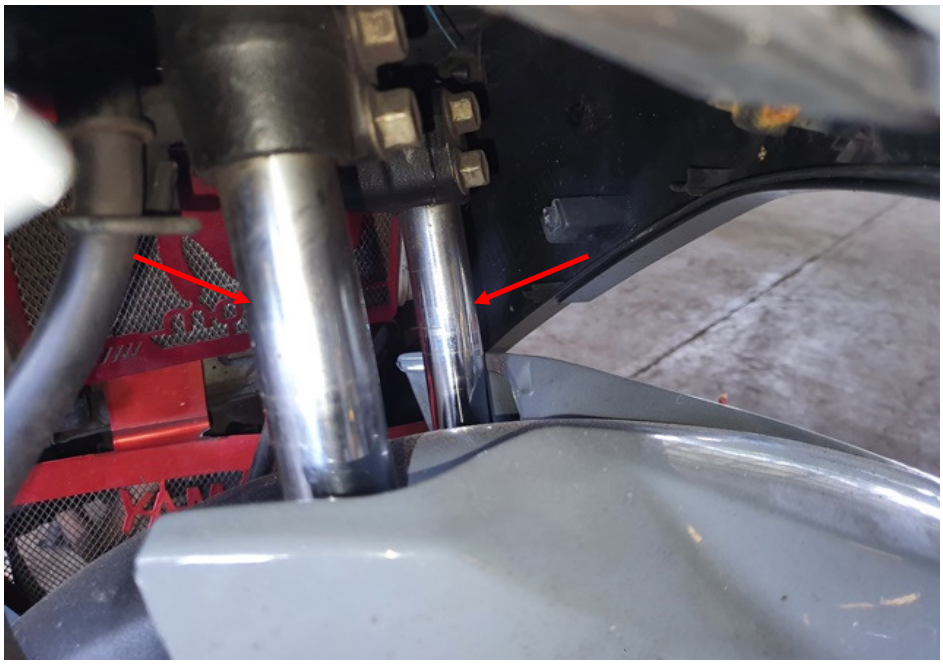


Photo 25 shows the front forks of the Motorcycle. The front forks were observed to be bent as a result of the accident (arrowed). We were hence not able to conduct any tests on the steering system of the Motorcycle.

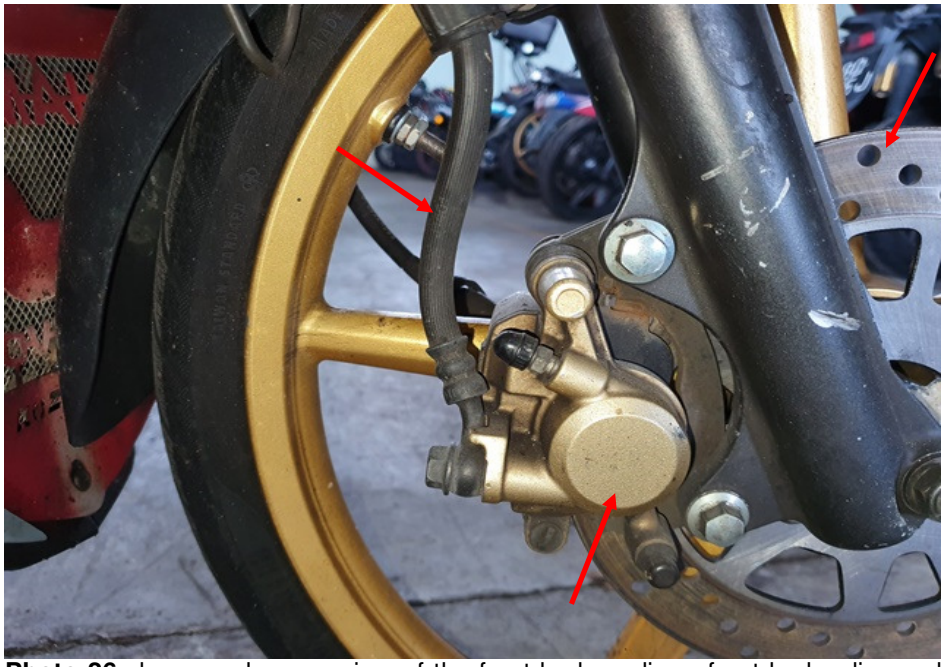


Photo 26 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) of the Motorcycle, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

Photo 27 shows the brake fluid reservoir for the front brake of the Motorcycle. The brake fluid was found to be of sufficient level for operating purposes. However the brake fluid was found to be contaminated (arrowed).

Photo 28 shows the front brake lever being depressed. There was some resistance felt (spongy like feel) upon pressing the front brake lever (arrowed). This would indicate that there is no leakage of pressure/vacuum in the front brake system.

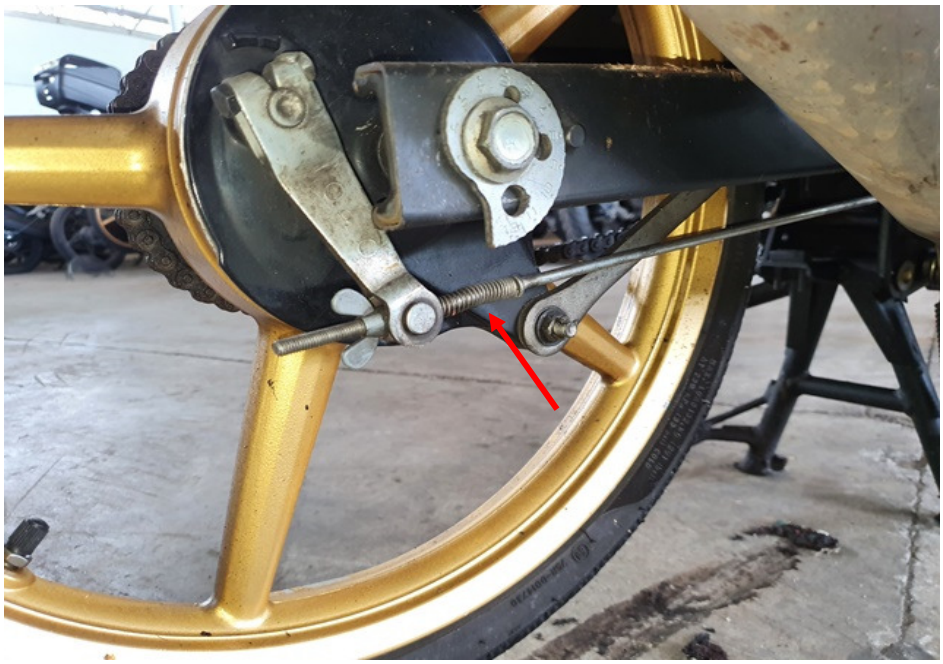


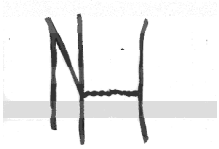
Photo 29 shows the rear wheel of the Motorcycle. The type of brake system for the rear wheel was of a mechanical type, controlled by the brake foot pedal of the Motorcycle. Our checks of the cable (arrowed), spring and drum which are all part of the components in the rear brake system of the Motorcycle reveal all to be intact and without damage.

Conclusion

16. For this particular case, we were unable to determine whether there was any possible mechanical failure to the Motorcycle that may have contributed to the accident. This was mainly due to the extent of damage that it had sustained. Its steering system was damaged as a result of the accident. The braking system of the Motorcycle was observed to be in serviceable condition.

17. The 2 tyres of the Motorcycle were found to be in serviceable condition (which included the deflated rear tyre) with remaining tread depth of approximately 4mm and 2mm. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 2 tyres. The front tyre was sufficiently inflated for vehicular operation.

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 front forks (as a result of the accident), which had rendered the Motorcycle immobile.



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