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Our Ref : CI/TPD21004869/N

15 April 2021

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBK 4046K

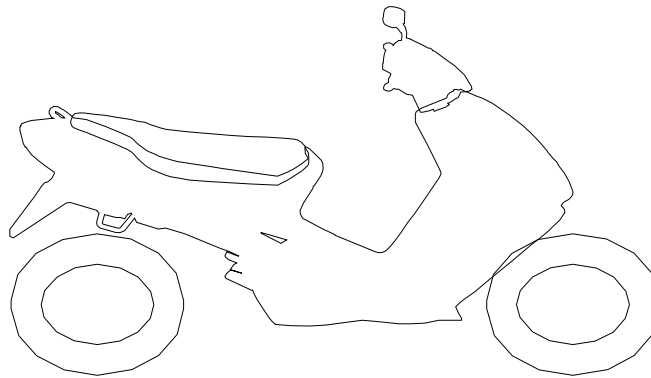
1. We refer to your request on 6 April 2021 to conduct a physical inspection of a motorcycle bearing registration number FBK 4046K (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 29 October 2020.
2. The objective of the inspection is to determine if there 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 15 April 2021 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 bent ignition key as a result of the accident.
5. The Motorcycle had sustained damages all around. Body parts that were found to have been damaged include its headlight assembly, front mudguard, front fork assembly, front wheel rim, front brake lever, front brake lever guard, clutch lever, clutch lever guard, petrol tank, side cowlings, right rear frame slider, rear brake pedal, right front footrest, right swingarm spool, rear side covers, tail light cover, rear seat cowl, pillion foot peg brackets and pillion foot pegs, amongst others.

Tyres and Wheel Rims

6. The condition of the 2 tyres 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 2 tyres.
7. The rear tyre was observed to be sufficiently inflated for vehicular operation. However the front tyre was observed to be deflated. The tyre brand, tyre size and remaining tread depth of the 2 tyres of the Motorcycle were recorded as follows:-



Pirelli 190/55 R17 (3mm)

Pirelli 120/70 R17 (4mm)
(Deflated)

8. The 2 tyres were wrapped around alloy wheel rims. At the time of our inspection, we did not observe any visible damage on the rear wheel rim of the Motorcycle. However we observed that the front wheel rim of the Motorcycle was bent. See photos 1 – 22 below.

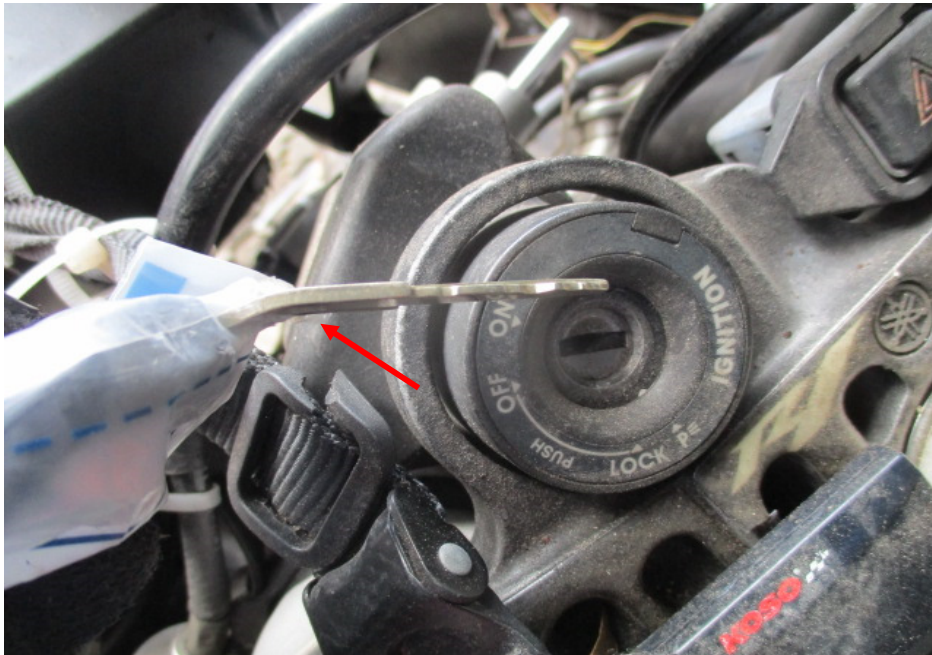


Photo 1 shows a closer view of the ignition key of the Motorcycle. The mileage of the Motorcycle was not recorded at the time of our inspection due to the bent ignition key as a result of the accident (arrowed).



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 right body of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around.



Photo 4 shows a general view of the left 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 frontal 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 mudguard, front fork assembly, front wheel rim, front brake lever, front brake lever guard, clutch lever, clutch lever guard, petrol tank, side cowlings, right rear frame slider, rear brake pedal, right front footrest, right swingarm spool, rear side covers, tail light cover, rear seat cowl, pillion foot peg brackets and pillion foot pegs, amongst others.



Photo 6 shows a closer view of the missing headlight assembly which was amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the accident (arrowed).



Photo 7 shows a closer view of the cracked front mudguard (arrowed) which was amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the accident.



Photo 8 shows a closer view of the missing left cowling of the Motorcycle as a result of the accident.

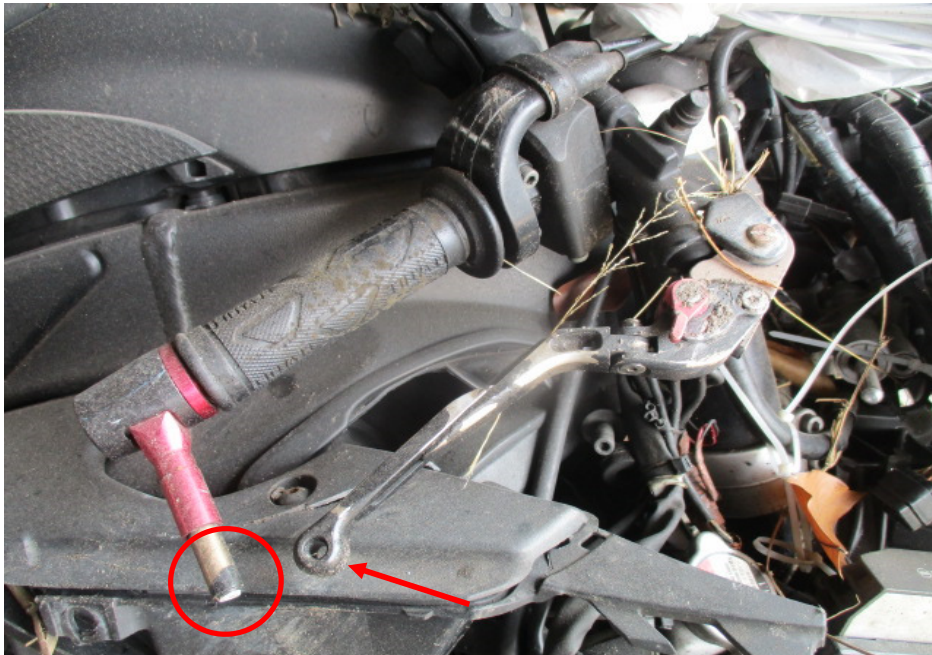


Photo 9 shows a closer view of the front brake lever (arrowed) and front brake lever guard (circled) which were amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the accident.

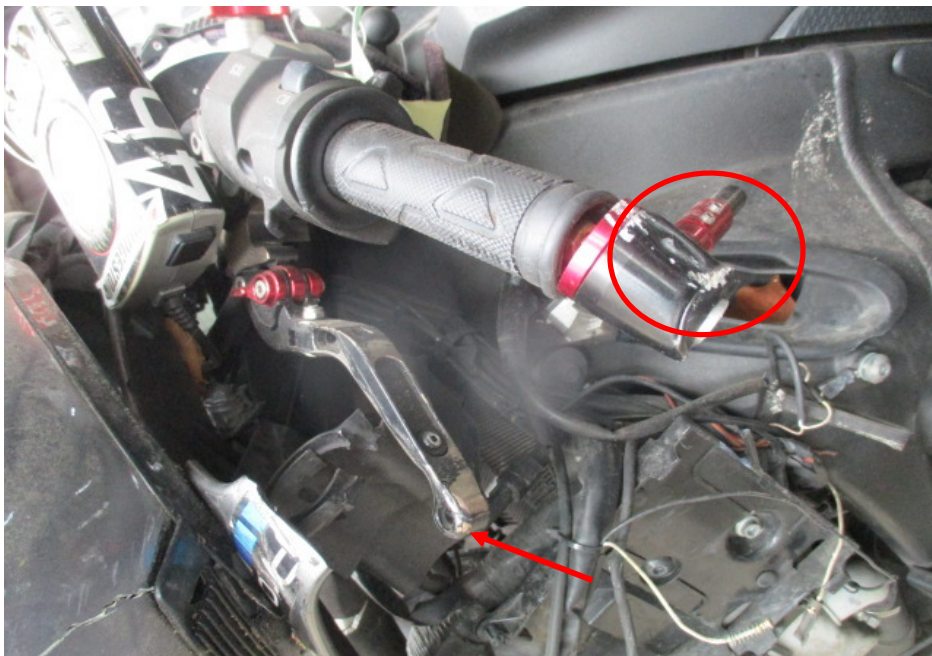


Photo 10 shows a closer view of the clutch lever (arrowed) and clutch lever guard (circled) which were amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the accident.

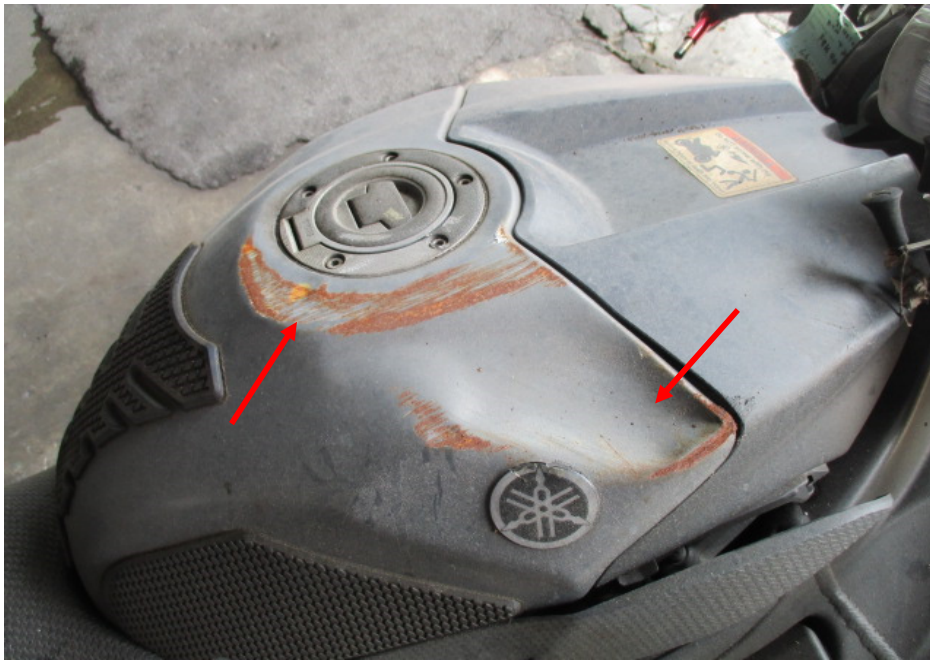


Photo 11 shows a closer view of the dented petrol tank (arrowed) of the Motorcycle as a result of the accident.



Photo 12 shows a closer view of the broken right cowling of the Motorcycle as a result of the accident.

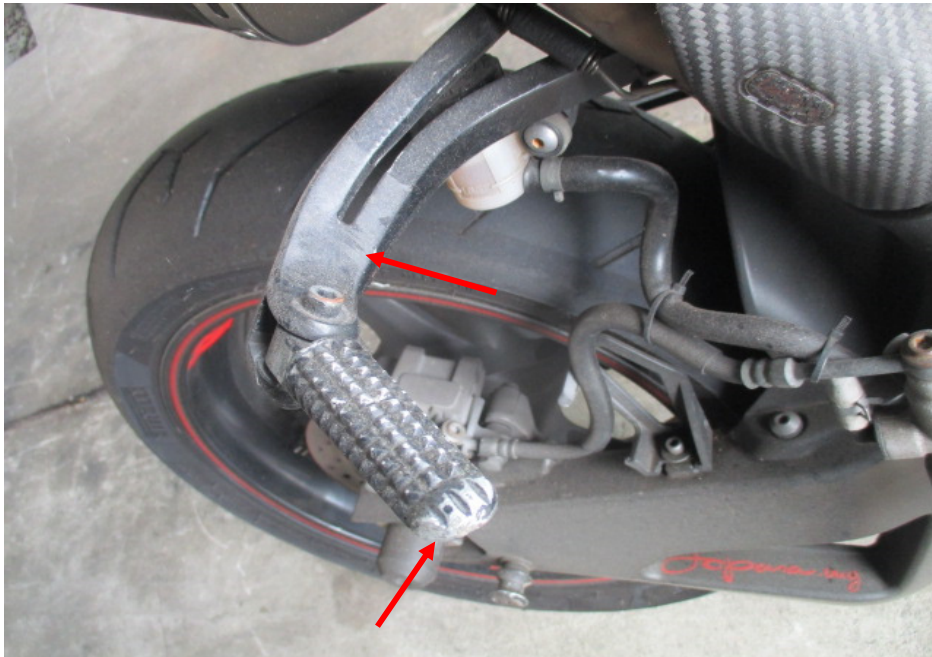


Photo 13 shows the bent right pillion foot peg and bracket (arrowed) of the Motorcycle as a result of the accident.



Photo 14 shows a closer view of the right front footrest (circled) and rear brake pedal (arrowed) which were amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.

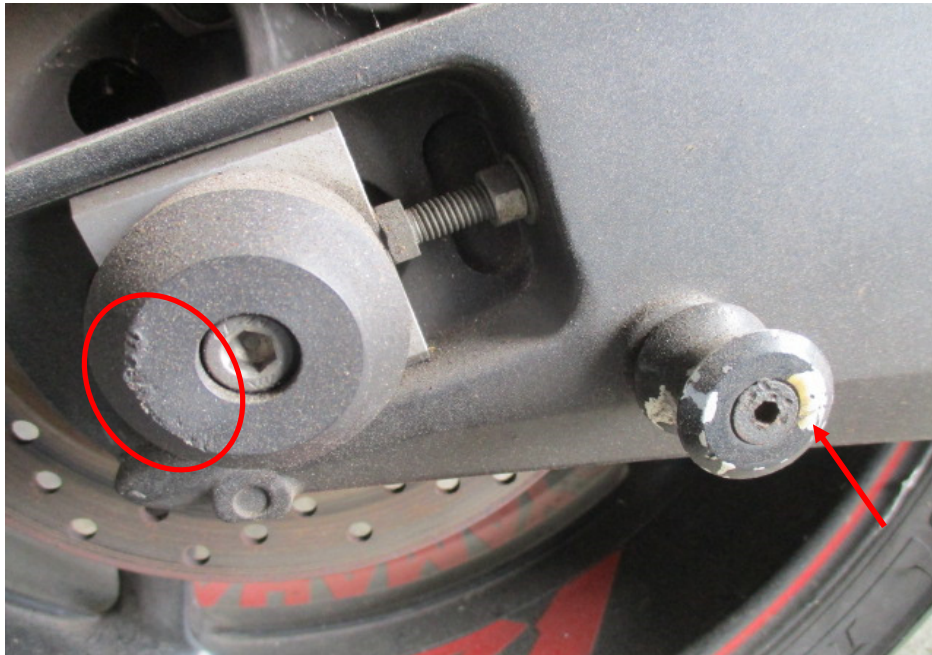


Photo 15 shows a closer view of the right rear slider (circled) and swingarm spool (arrowed) which were amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the accident.



Photo 16 shows the grazed tail light cowl, right rear side cover and rear seat cowl (arrowed) of the Motorcycle as a result of the accident.

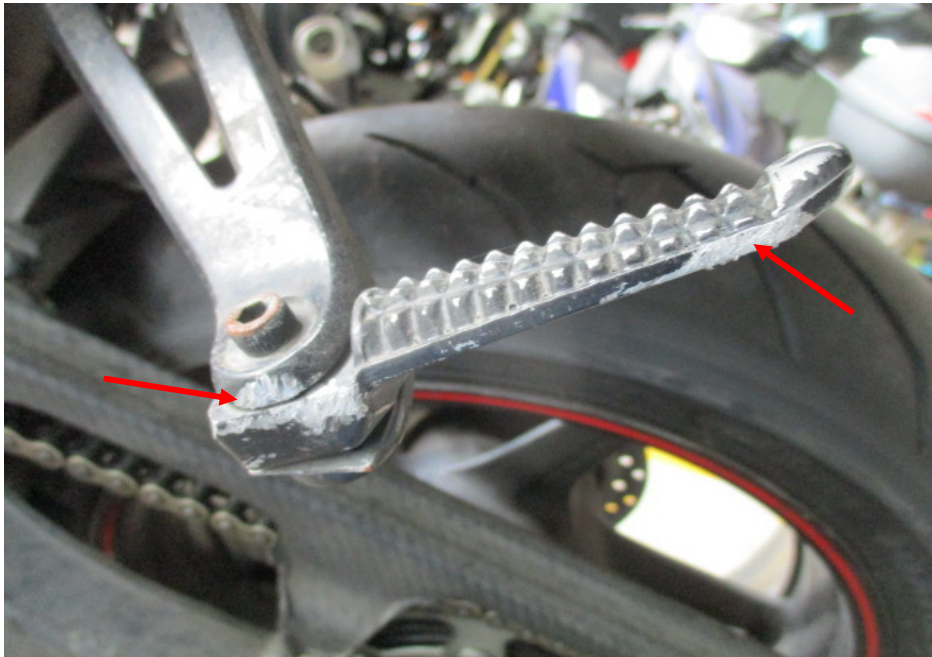


Photo 17 shows the grazed left pillion foot peg and bracket (arrowed) of the Motorcycle as a result of the accident.



Photo 18 shows the grazed left rear side cover (arrowed) of the Motorcycle as a result of the accident.



Photo 19 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. 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. However the front tyre was observed to be deflated.



Photo 20 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 3mm. The tyre was also observed to be sufficiently inflated for vehicular operation. 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.



Photo 21 shows the bent front wheel rim of the Motorcycle at the time of our inspection (circled).



Photo 22 shows a close up view of the bent front wheel rim of the Motorcycle at the time of our inspection (arrowed).

Engine & Drive Train

9. Upon examination of the engine area of the Motorcycle, we had observed that the various engine related parts and components on the left side of the Motorcycle were intact with no visible damage. There was also no fluid leak and/or fluid stain found around the left engine area of the Motorcycle. The various right engine components had sustained damage of grazing nature as a result of the accident however the engine components were still intact. There was also no fluid leak and/or fluid stain found around the right engine area of the Motorcycle.
10. The gear chain of the Motorcycle, which rotates the rear wheel of the Motorcycle, was found to be in serviceable condition and without any misalignment. It was also adequately lubricated for operating purposes. See photos 23 – 26 below.



Photo 23 shows the left 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 left engine area of the Motorcycle.

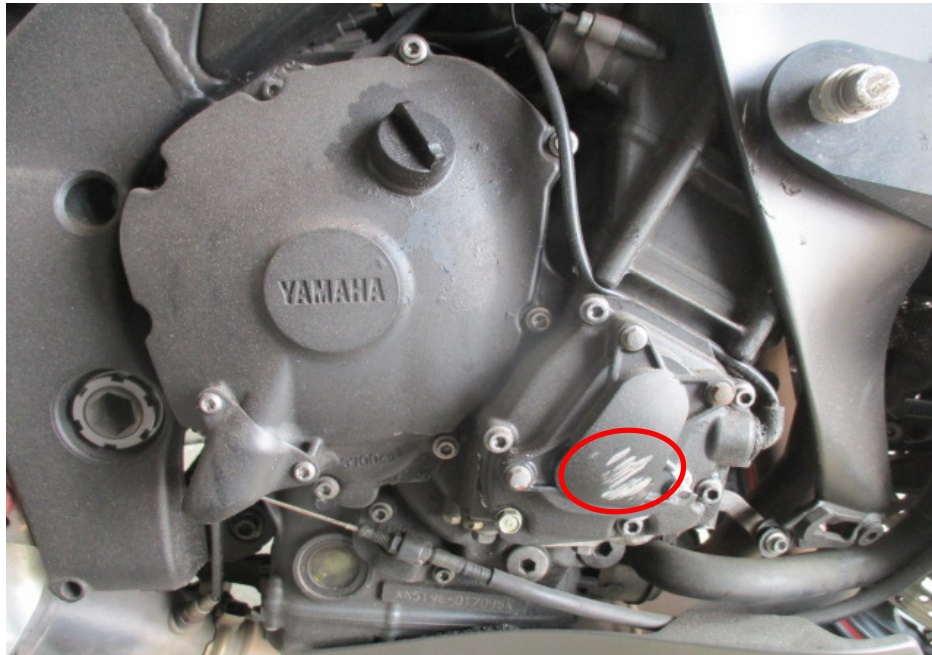


Photo 24 shows the right side of the engine of the Motorcycle at the time of our inspection. The various right engine components had sustained damage of grazing nature as a result of the accident (circled) however the engine components were still intact. There was also no fluid leak and/or fluid stain found around the right engine area of the Motorcycle.

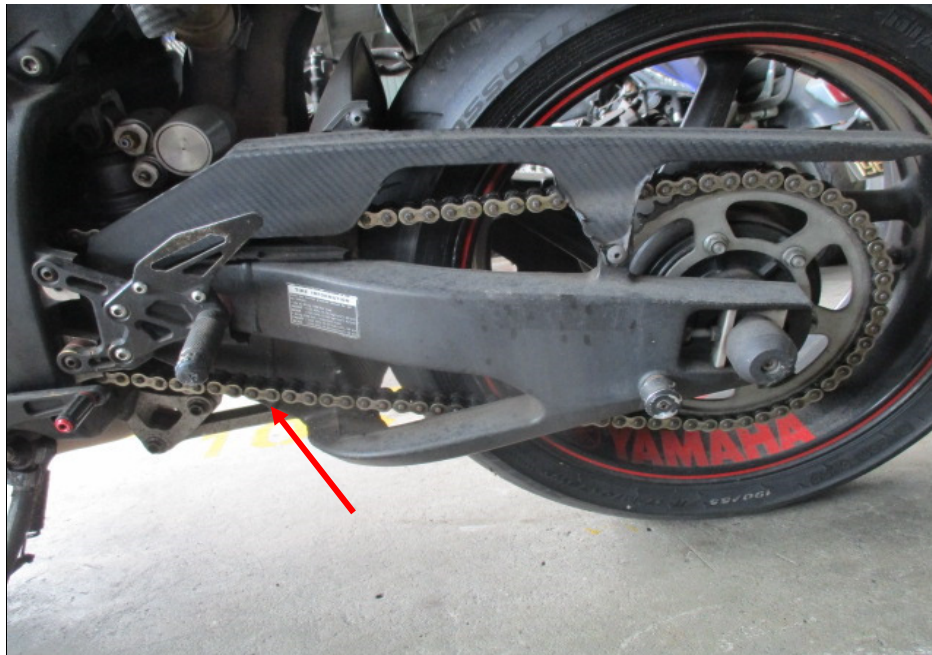


Photo 25 shows the gear chain (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes. The gear chain rotates the rear wheel of the Motorcycle.

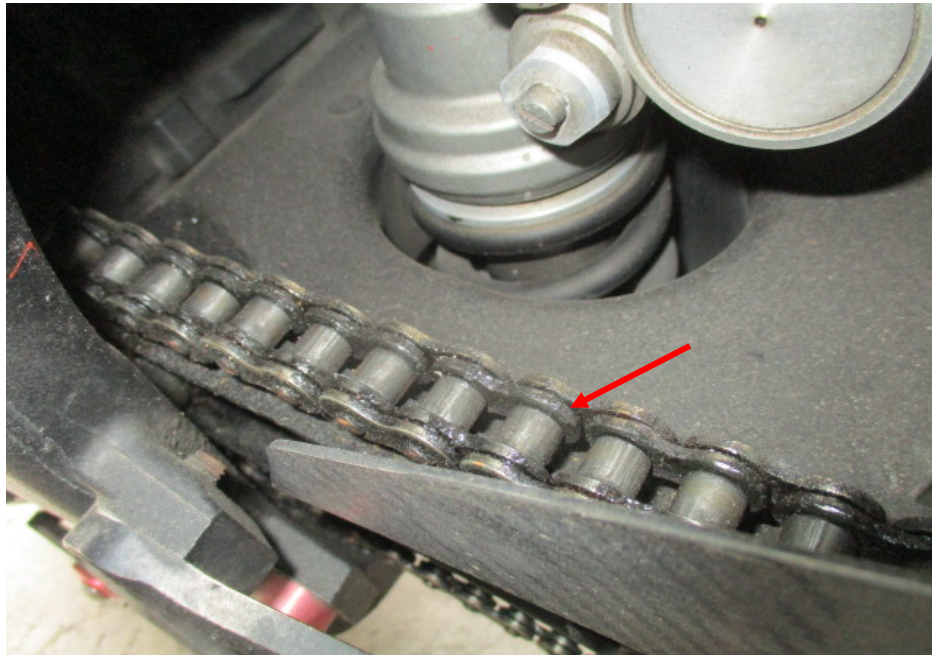


Photo 26 shows the closer view of the gear chain (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.

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 of its front fork assembly. The front forks were found to be bent inwards as a result of the accident.
12. The braking system of the Motorcycle was observed to be of a full hydraulic type, where hydraulic (brake fluid) pressure controls the brake for the front wheel and rear wheel. The brake for the front wheel is engaged by pressing 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. Our visual examination of the various components in the Motorcycle's braking system like the brake discs, brake calipers, brake lever, brake foot pedal and brake hoses revealed all to be intact and without damage. The brake fluid for rear brake was found to be of sufficiently level and without any contamination. However the front brake reservoir was observed to be missing as a result of the accident.

14. Static brake tests conducted on the Motorcycle had appear to indicate that the rear braking system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon stepping on the rear brake pedal. This would indicate that there was no leakage of pressure/vacuum in the rear brake system.
15. Static brake tests conducted on the Motorcycle had appear to indicate that the front braking system of the Motorcycle was not in serviceable condition. There was no resistance felt (spongy like feel) upon pressing the front brake lever. This would indicate that there was a leakage of pressure/vacuum in the brake system due to the missing front brake reservoir.
16. 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 27 – 33 below.

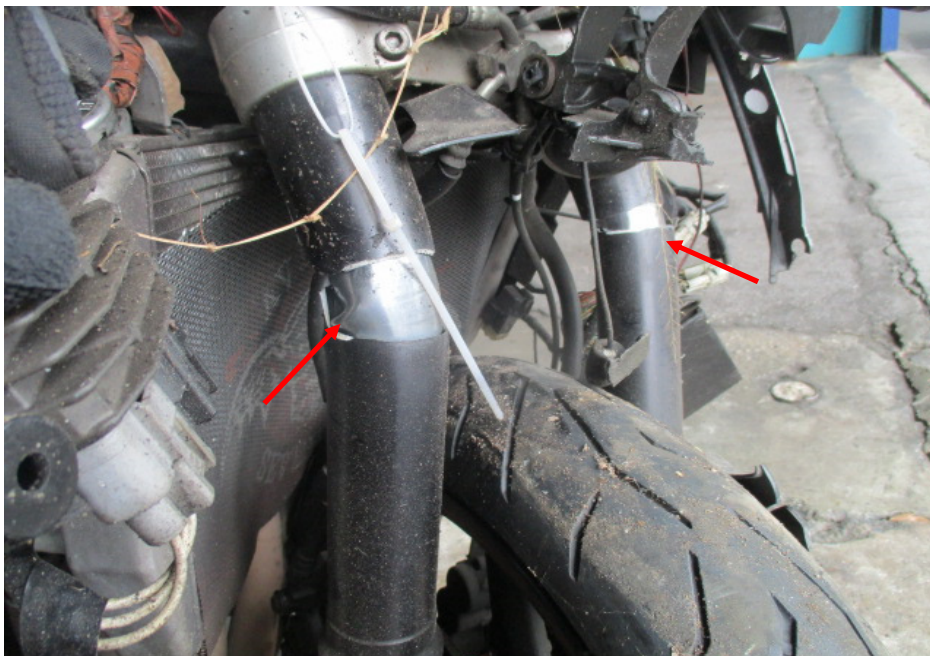


Photo 27 shows the front forks of the Motorcycle. The front forks (arrowed) were observed to be bent inwards as a result of the accident. We were hence not able to conduct any tests on the steering system of the Motorcycle.

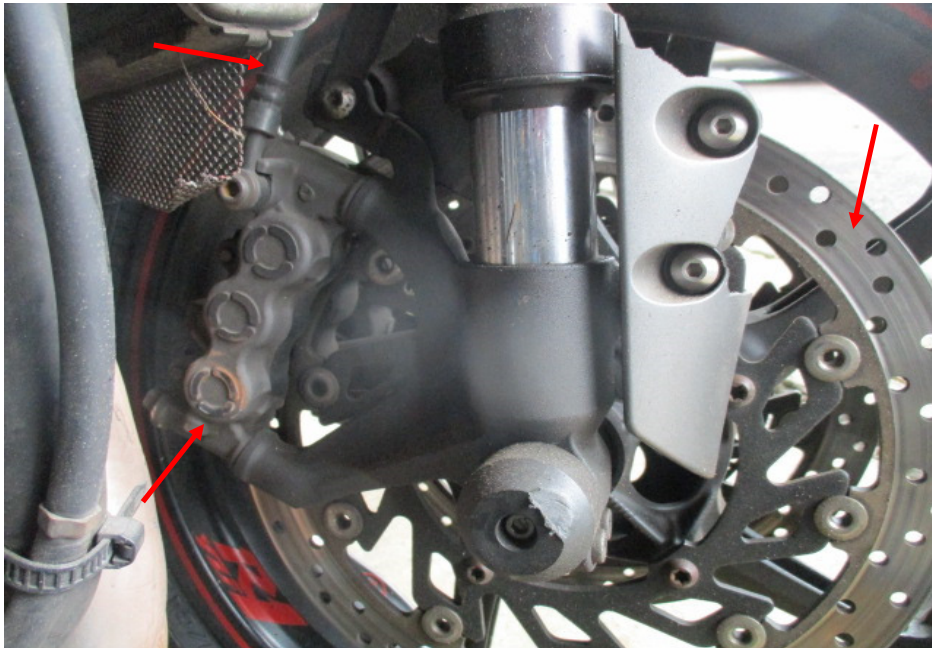


Photo 28 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) at the right side of the Motorcycle's front wheel, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

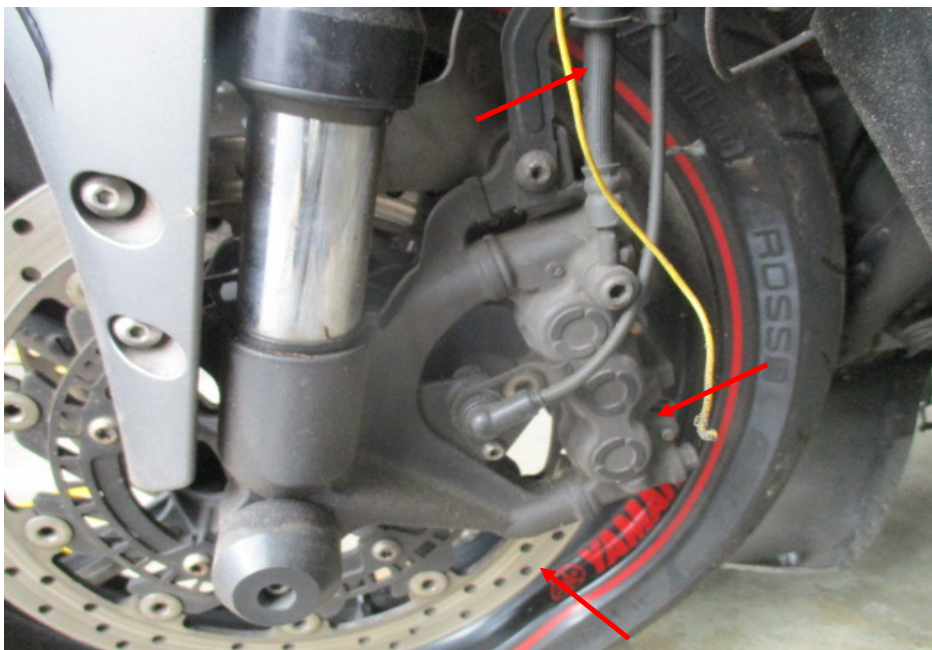


Photo 29 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) at the left side of the Motorcycle's front wheel, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

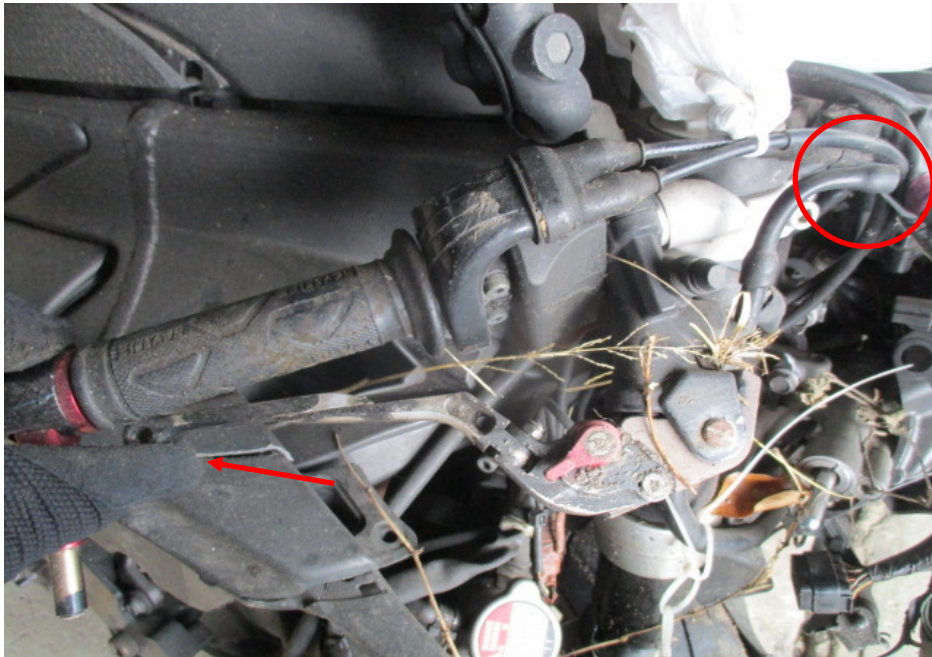


Photo 30 shows the front brake lever being depressed. There was no resistance felt (spongy like feel) upon pressing the front brake lever (arrowed). This would indicate that there is a leakage of pressure/vacuum in the front brake system due to the missing front brake reservoir as a result of the accident (circled).

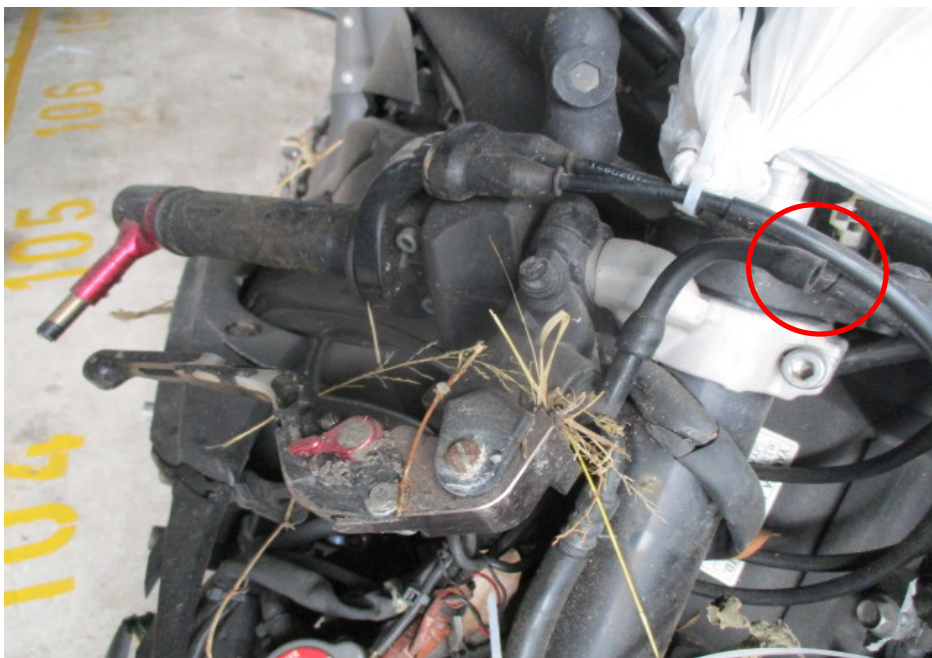


Photo 31 shows a closer view of the missing front brake reservoir of the Motorcycle as a result of the accident (circled).

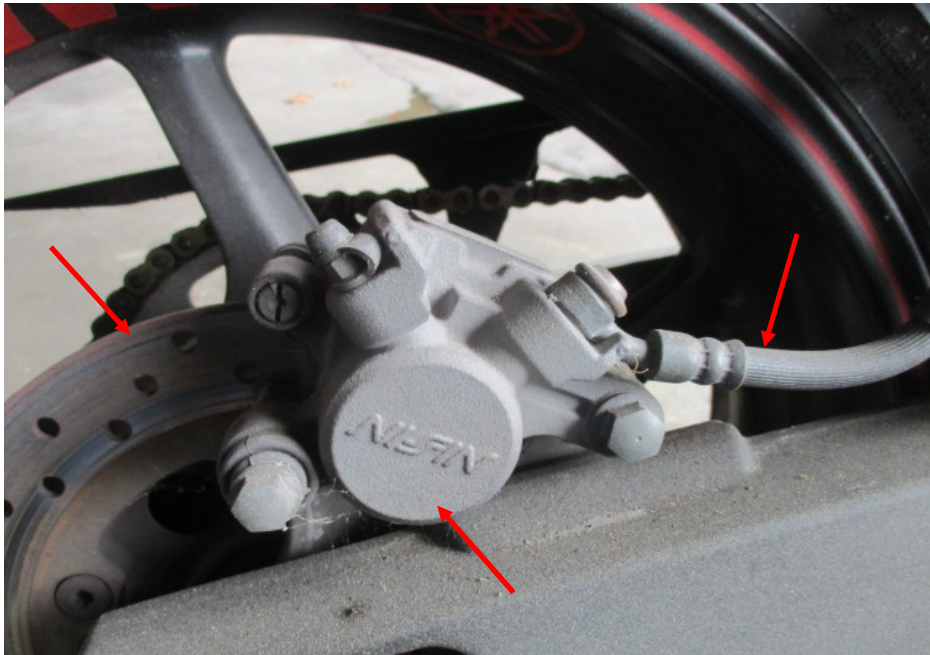


Photo 32 shows a close up view of the rear brake caliper, rear brake disc and rear brake hose (arrowed) of the Motorcycle, which are all part of the components in the hydraulic rear brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.



Photo 33 shows the brake fluid reservoir for the rear brake of the Motorcycle. The brake fluid was observed to be of sufficient level and without contamination for operational purposes.

Conclusion

17. 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 and front braking system were damaged as a result of the accident. The rear braking system of the Motorcycle was observed to be in serviceable condition.
18. The 2 tyres of the Motorcycle were found to be in serviceable condition (which had included the deflated front tyre). 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 rear tyre was sufficiently inflated for vehicular operation. Both tyres had remaining tread depth of approximately 4mm and 3mm.
19. 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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