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Our Ref : CI/TPD21010813/N

25 October 2021

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBC 2692A

1. We refer to your request on 22 September 2021 to conduct a physical inspection of a motorcycle bearing registration number FBC 2692A (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 5 July 2021.
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 22 October 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.

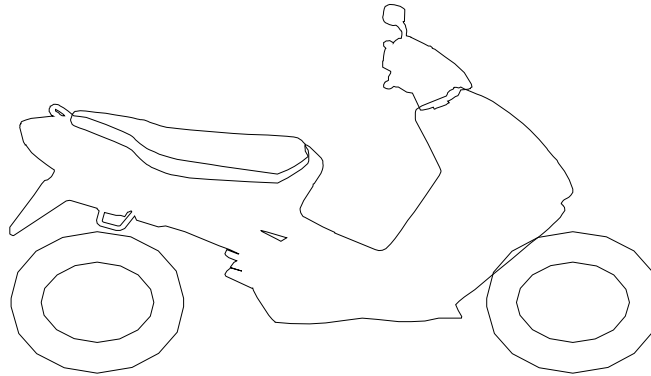
General Condition

4. The mileage of the Motorcycle at the time of our inspection was 67, 244km.
5. The Motorcycle had sustained damages all around. Body parts that were found to have been damaged include its headlight assembly, front cowling, steering stem, front mudguard, handlebar, side mirrors, side cowlings, front brake lever, clutch lever, right rear side cover, rear brake pedal, right front footrest, top box rack and exhaust muffler heat shield, 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. Both the tyres were observed to be sufficiently inflated for vehicular operation.

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



Metzeler 80/90 R17 (7mm)

Pirelli 70/90 R17 (3mm)

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 front and rear wheel rim of the Motorcycle. See photos 1 – 18 below.



Photo 1 shows the speedometer gauge of the Motorcycle where the mileage recorded at the time of our inspection was 67, 244km (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. Body parts that were found to have been damaged include its headlight assembly, front cowlings, steering stem, front mudguard, handlebar, side mirrors, side cowlings, front brake lever, clutch lever, right rear side cover, rear brake pedal, right front footrest, top box rack and exhaust muffler heat shield, amongst others.

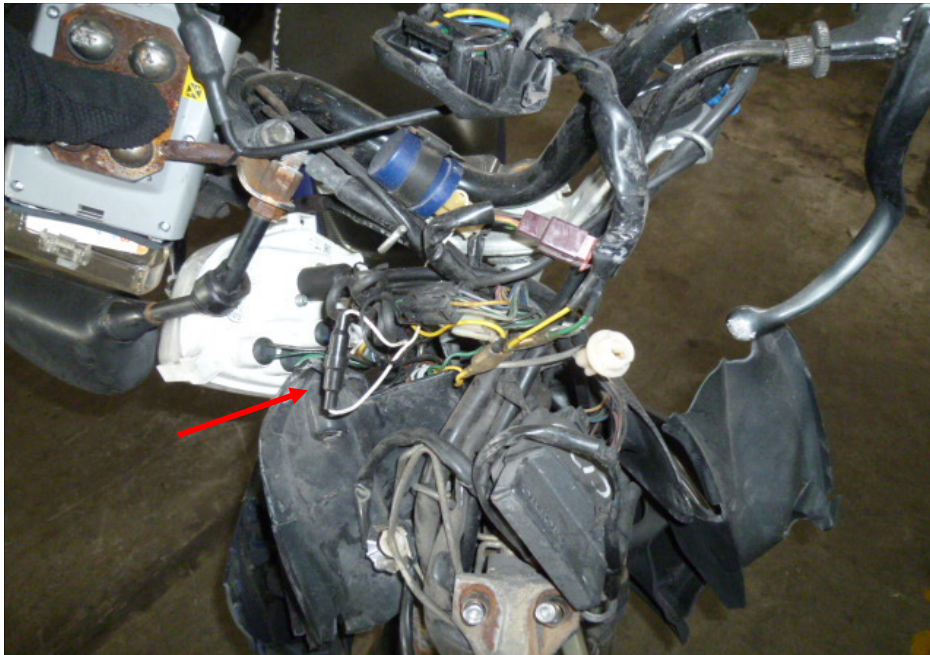


Photo 5 shows a closer view of the missing headlight assembly of the Motorcycle as a result of the accident (arrowed).



Photo 6 shows a closer view of the front brake lever and left handlebar end of the Motorcycle (arrowed). These parts were amongst the body parts of the Motorcycle which were damaged as a result of the accident.



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

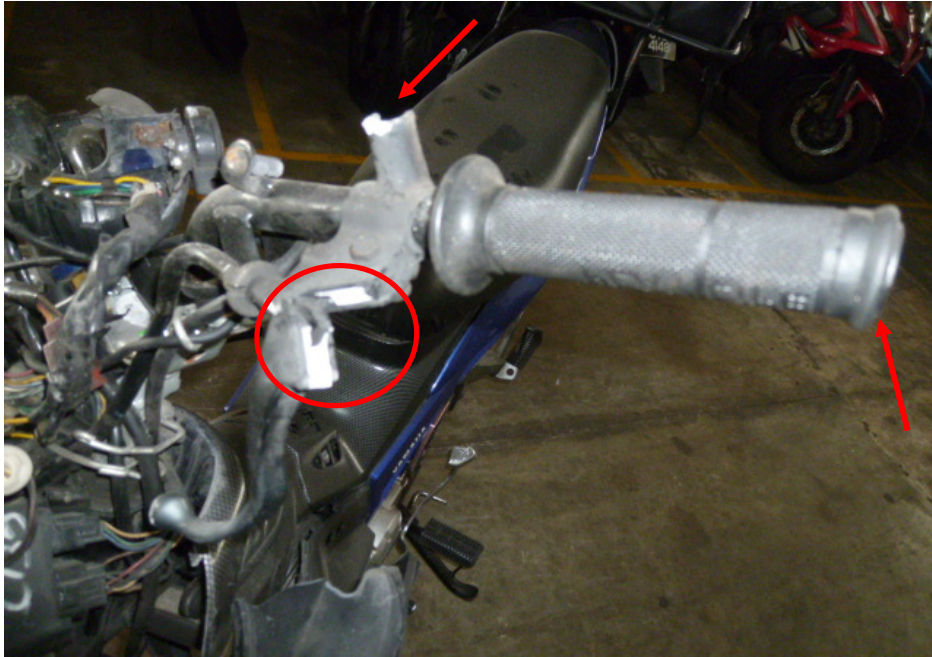


Photo 8 shows a closer view of the broken clutch lever (circled), left side mirror and left handlebar end of the Motorcycle (arrowed). These parts were amongst the body parts of the Motorcycle which were damaged as a result of the accident.



Photo 9 shows a closer view of the right cowling which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident (arrowed).



Photo 10 shows a closer view of the cracked left cowling which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident (arrowed).



Photo 11 shows a closer view of the right rear side cover which was amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the accident (circled).



Photo 12 shows a closer view of the bent handlebar which were amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.



Photo 13 shows a closer view of the rear brake pedal (circled) and right front footrest (arrowed) which were amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.



Photo 14 shows the missing front cowling of the Motorcycle at the time of our inspection (arrowed).



Photo 15 shows a closer view of the top box rack which was amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the accident (arrowed).



Photo 16 shows a closer view of the grazed exhaust muffler heat shield of the Motorcycle as a result of the accident (arrowed).



Photo 17 shows the front tyre of the Motorcycle at the time of our inspection. The front tyre was observed to be in serviceable condition with remaining tread depth of approximately 3mm. The pattern of the tread was also 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.



Photo 18 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 7mm. 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.

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 train of the Motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. See photos 19 – 22 below.



Photo 19 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 20 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 21 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 train rotates the rear wheel of the Motorcycle.



Photo 22 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

11. For this case, we were not able to conduct any test(s) on the steering system of the Motorcycle due to the damage to its steering stem. The steering stem was observed to be broken 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 caliper, drum, brake lever and brake foot pedal, revealed all to be intact and without damage. There was no visible tear or cut observed on the connecting hoses and cables. However we were unable to remove the front brake reservoir cover to examine whether the brake fluid was of sufficient level and without contamination for operational purposes due to a worn out screw.
13. 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 brake lever. This would indicate that there may be a leakage of pressure/vacuum in the front braking system.
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 stem, 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 23 – 28 below.



Photo 23 shows the steering stem of the Motorcycle. The steering stem (circled) was observed to be broken as a result of the accident. We were hence not able to conduct any tests on the steering system of the Motorcycle.

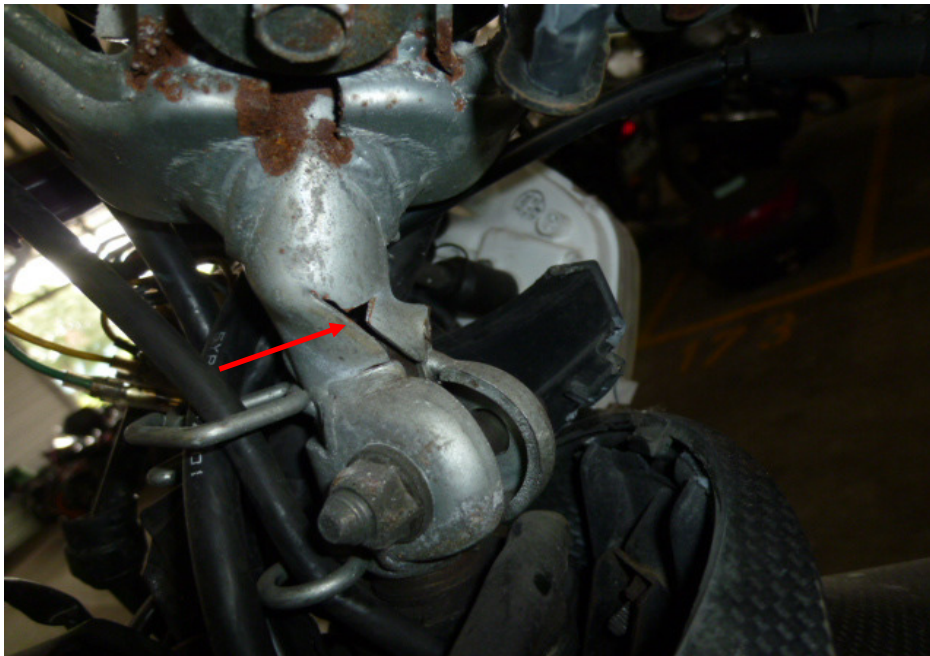


Photo 24 shows a close up view of the steering stem of the Motorcycle. The steering stem (arrowed) was observed to be broken as a result of the accident. We were hence not able to conduct any tests on the steering system of the Motorcycle.

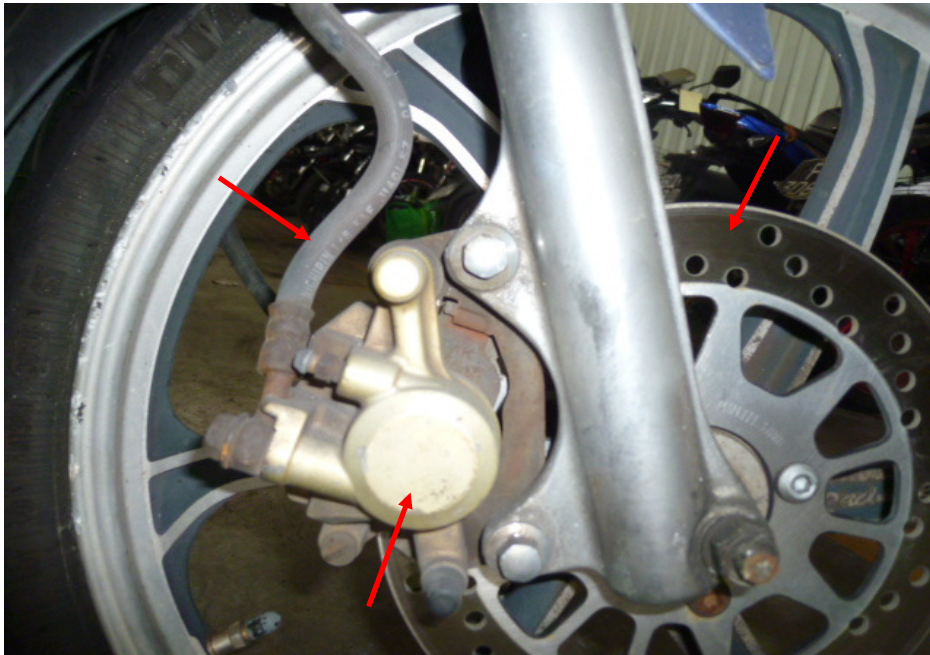


Photo 25 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) of the Motorcycle, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.



Photo 26 shows the brake fluid reservoir cover for the front brake of the Motorcycle. We were unable to examine whether the brake fluid was of sufficient level and without contamination for operational purposes due to the worn out screw (circled).

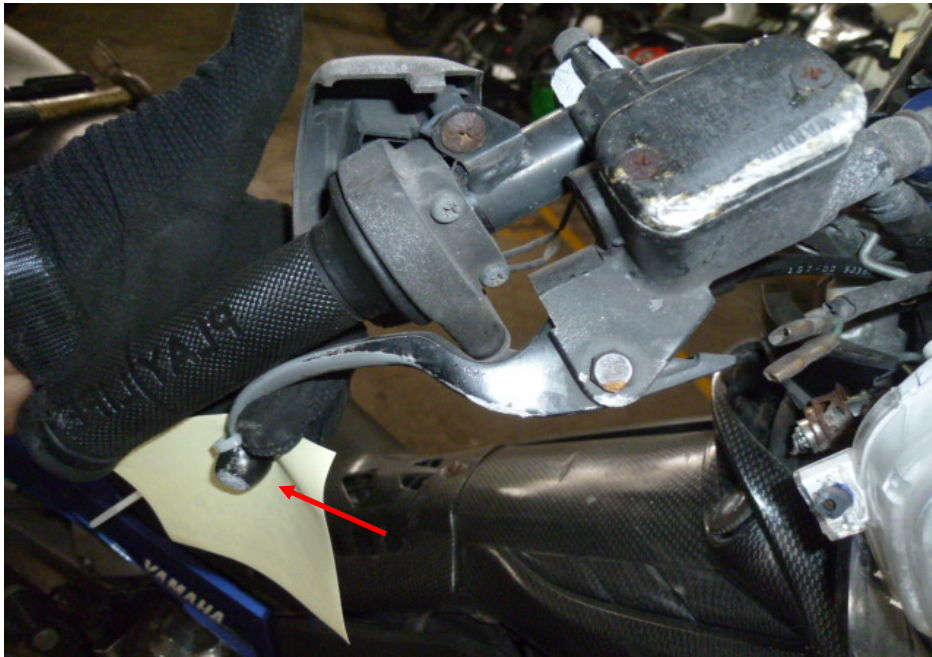


Photo 27 shows the front brake lever being depressed. There was no resistance felt (spongy like feel) upon pressing the front brake lever (arrowed). This would indicate that there may be a leakage of pressure/vacuum in the front brake system.



Photo 28 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

15. 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 front braking system of the Motorcycle was observed not to be in serviceable condition. The rear braking system of the Motorcycle was observed to be in serviceable condition.
16. The 2 tyres of the Motorcycle were found to be in serviceable condition (which included the deflated rear 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 3mm and 7mm.

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