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Our Ref : CI/TPD21005542/N

31 May 2021

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBM 2693U

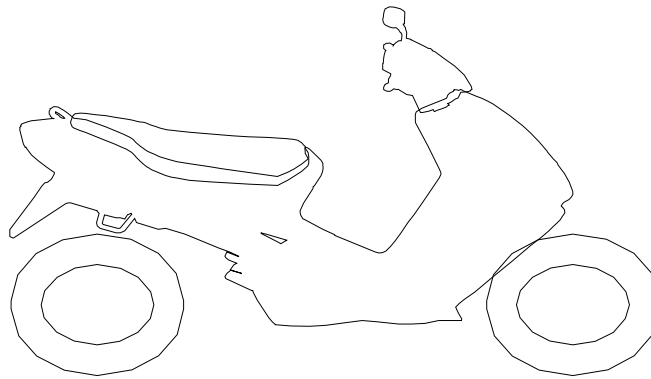
1. We refer to your request on 25 March 2021 to conduct a physical inspection of a motorcycle bearing registration number FBM 2693U (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 1 March 2021.
2. The objective of the inspection is to determine if there 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 31 May 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 the damage sustained to the speedometer gauge 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 top clamp, front fork assembly, radiator, speedometer gauge, left cowling, fuel tank, left front footrest, right rear side cover and exhaust muffler, amongst others.

Tyres and Wheel Rims

6. The condition of the rear 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 rear tyre. The rear tyre was observed to be sufficiently inflated for vehicular operation.
7. However we observed a tear on the right sidewall of the front tyre. The front tyre was also observed to be deflated as a result of the accident.
8. The tyre brand, tyre size and remaining tread depth of the 2 tyres of the Motorcycle were recorded as follows:-



Pirelli 200/55 R17 (3mm)

Pirelli 120/70 R17 (3mm)
(Deflated)

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 rear wheel rim of the Motorcycle. However we did observe that the front wheel rim was broken. See photos 1 – 13 below.



Photo 1 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 top clamp, front fork assembly, radiator, speedometer gauge, left cowling, fuel tank, left front footrest, right rear side cover and exhaust muffler, amongst others.



Photo 2 shows a closer view of the cracked left cowling which was amongst the body parts of the Motorcycle that had sustained damage as a result of the accident (arrowed).



Photo 3 shows a closer view of the radiator which was amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the accident.



Photo 4 shows a closer view of the damaged top clamp the Motorcycle as a result of the accident (arrowed).



Photo 5 shows a closer view of the speedometer gauge of the Motorcycle. The mileage of the Motorcycle at the time of our inspection was not recorded due to the damage sustained to the speedometer gauge as a result of the accident.



Photo 6 shows a closer view of the grazed right rear side cover of the Motorcycle as a result of the accident.



Photo 7 shows a closer view of the petrol tank, 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 damaged exhaust muffler of the Motorcycle as a result of the accident (circled).

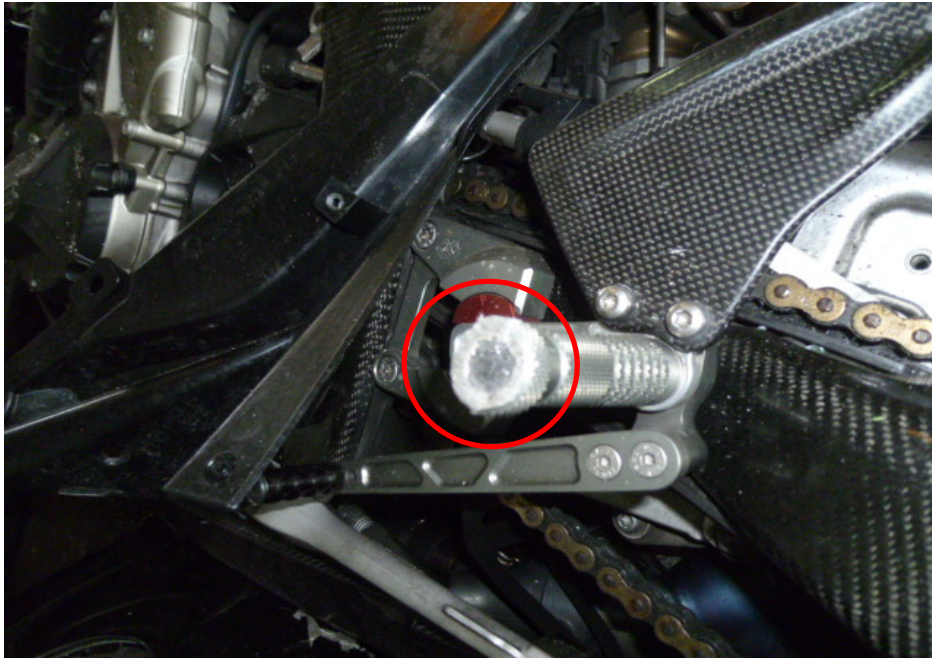


Photo 9 shows a closer view of the grazed left front footrest of the Motorcycle as a result of the accident (circled).



Photo 10 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 3mm. The tyre was observed to be deflated. We also observed a tear on the right sidewall of the front tyre as a result of the accident (circled).



Photo 11 shows a closer view of the tear on the right sidewall of the front tyre as a result of the accident (circled).



Photo 12 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 13 shows the broken front wheel rim of the Motorcycle as a result of the accident (arrowed) at the time of our inspection.

Engine & Drive Train

10. 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.
11. The gear chain of the Motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. See photos 14 – 17 below.

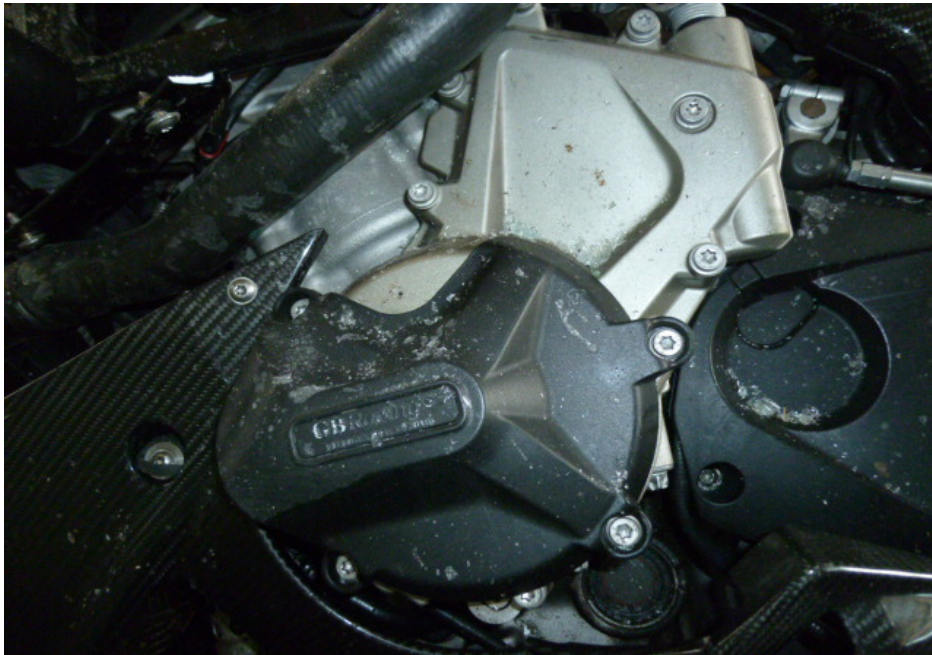


Photo 14 shows the left side of the engine of the Motorcycle at the time of our inspection. The various engine related parts and components were found to be intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the left engine area of the Motorcycle.



Photo 15 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 16 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.

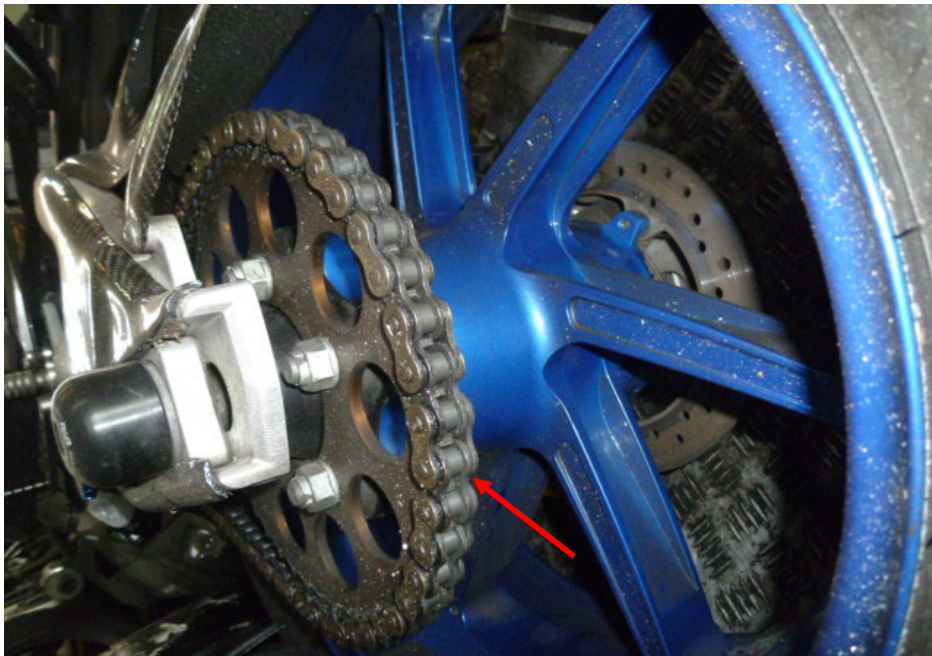


Photo 17 shows the closer view of the gear chain (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.

Steering System & Braking System

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 front forks. The front forks were found to be broken as a result of the accident which had rendered the Motorcycle immobile.
13. 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.
14. Our visual examination of the various components in the Motorcycle's braking system like the brake discs, brake calipers, brake lever, brake pedal and brake hoses revealed all to be intact and without damage except for the front right brake disc which was observed to be bent as a result of the accident. We also observed that the front brake fluid reservoir of the Motorcycle was missing at the time of our inspection. The brake fluid for the rear brake was found to be of sufficient level for operational purposes and without any contamination.
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. Static brake tests conducted on the rear braking system of 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 braking system.
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 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 18 – 23 below.



Photo 18 shows the front forks of the Motorcycle. The front forks were found to be broken as a result of the accident (arrowed) which had rendered the Motorcycle immobile. Hence we were not able to conduct any test(s) on the steering system of the Motorcycle.



Photo 19 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 except for the front brake disc which was observed to be bent as a result of the accident (circled). No leakage of brake fluid was also observed.

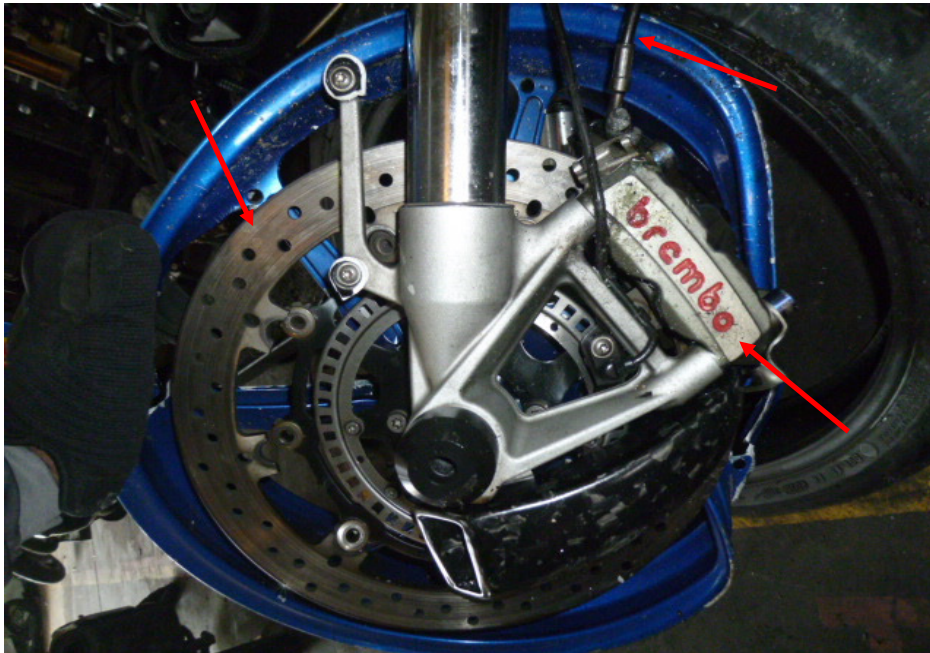


Photo 20 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) at the left side of the Motorcycle's front wheel, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.



Photo 21 shows the missing front brake fluid reservoir of the Motorcycle at the time of our inspection (circled). Hence static brake tests conducted on the Motorcycle had appear to indicate that the front braking system of the Motorcycle was not in serviceable condition.



Photo 22 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 23 shows the brake fluid reservoir for the rear brake of the Motorcycle. The brake fluid was observed to be of sufficient level for operational purposes and without contamination.

Conclusion

18. 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.
19. The 2 tyres of the Motorcycle were found to be in serviceable condition (which had included the torn 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 rear tyre. The rear tyre was sufficiently inflated for vehicular operation. Both tyres had remaining tread depth of approximately 3mm each.
20. 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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