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Our Ref : CI/TPD21005540/N

5 May 2021

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBJ 1311U

1. We refer to your request on 25 March 2021 to conduct a physical inspection of a motorcycle bearing registration number FBJ 1311U (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 7 January 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 5 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.

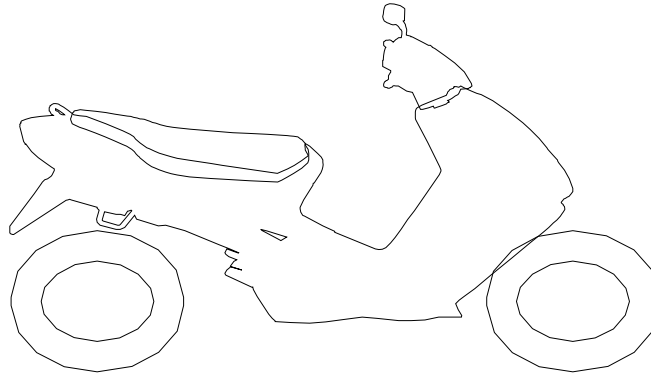
General Condition

4. The mileage of the Motorcycle at the time of our inspection was 60, 445km.
5. The Motorcycle had sustained damages all around. Body parts that were found to have been damaged include its headlight assembly, head cowl, front fork assembly, front mudguard, side cowlings, left side mirror, right rear side cover, rear brake pedal, right front footrest, rear number plate, top box rack, exhaust muffler 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. The rear tyre was observed to be sufficiently inflated for vehicular operation.

7. However the front tyre was observed to be deflated as a result of the accident. The tyre brand, tyre size and remaining tread depth of the 2 tyres of the Motorcycle were recorded as follows:-



Dunlop 90/80 R17 (3mm)

Dunlop 70/90 R17 (3mm)
(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 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 60, 445km (circled).



Photo 2 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 3 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 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, head cowl, front fork assembly, front mudguard, side cowlings, left side mirror, right rear side cover, rear brake pedal, right front footrest, rear number plate, top box rack, exhaust muffler and exhaust muffler heat shield, amongst others.



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

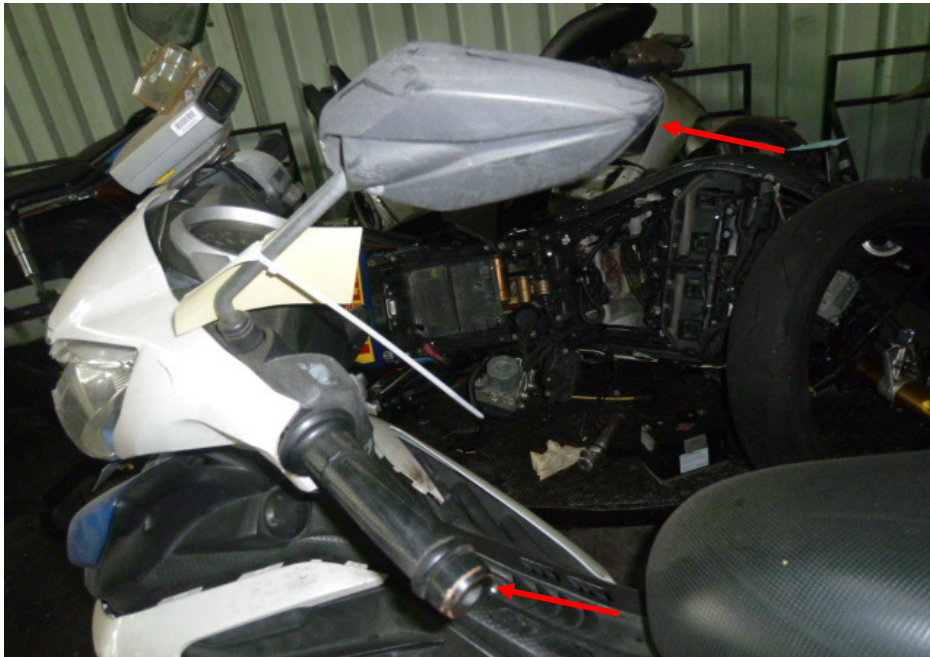


Photo 6 shows a closer view of the left side mirror and left handlebar end of the Motorcycle (arrowed). These parts were amongst the body parts of the Motorcycle which were damaged as a result of the accident.



Photo 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 head cowl which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident.



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



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 grazed exhaust muffler (circled) and dented exhaust muffler heat shield (arrowed) 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 broken top box rack of the Motorcycle at the time of our inspection (arrowed).



Photo 15 shows the dented rear number plate of the Motorcycle as a result of the accident (arrowed).



Photo 16 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. 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 as a result of the accident.



Photo 17 shows a closer view of the deflated front tyre of the Motorcycle as a result of the accident (arrowed).



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 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.

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. 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 chain rotates the rear wheel of the Motorcycle.



Photo 22 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 forks. The front forks were found to be bent 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 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 without contamination and of sufficient level for operating purposes. There was also no visible tear or cut observed on the connecting hoses and cables.
13. Static brake tests conducted on the Motorcycle had appear to indicate that the braking system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon pressing the brake lever and upon stepping the brake pedal. This would indicate that there was no leakage of pressure/vacuum in the braking system.
14. For this case, we were not able to carry out any operational tests to the steering system and front 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.
15. We subsequently carried out an operational test of the Motorcycle's rear braking system. This was done by firstly putting the Motorcycle on its main stand. We then proceeded to turn the rear wheel, allowing it to spin freely, simulating the Motorcycle in motion. We thereafter engaged the rear brake pedal of the Motorcycle. The rear wheel of the Motorcycle was able to stop rotating immediately upon depressing the brake pedal. At the end of the short operational test, we did not observe any abnormal behaviour of the Motorcycle's rear braking system. See photos 23 – 27 below.



Photo 23 shows the front forks of the Motorcycle. The front forks (arrowed) were observed to be bent as a result of the accident. We were hence not able to conduct any tests on the steering system of the Motorcycle.

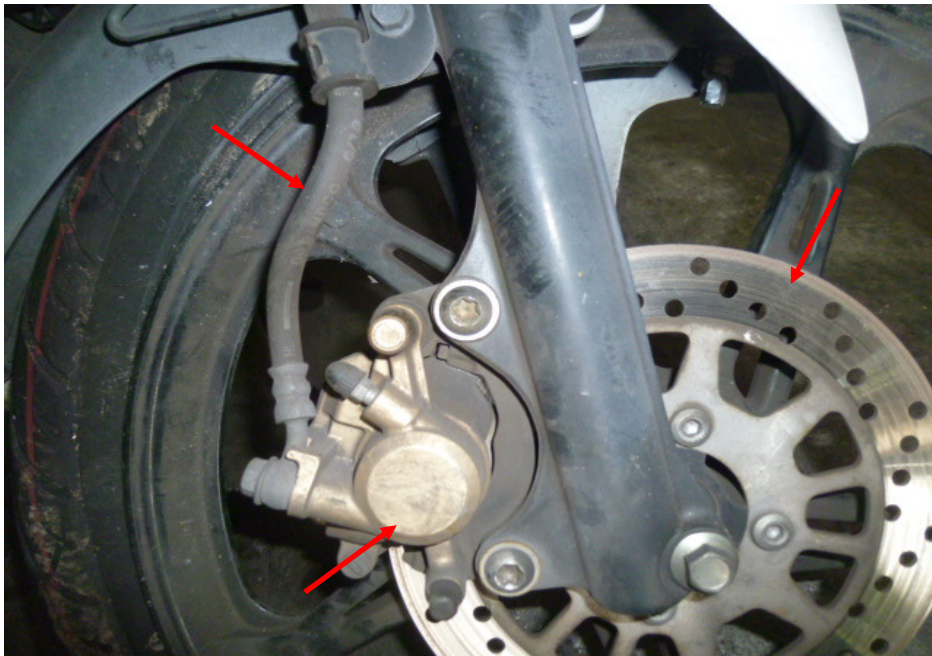


Photo 24 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) of the Motorcycle, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.



Photo 25 shows the brake fluid reservoir for the front brake of the Motorcycle. The brake fluid was observed to be of sufficient level (arrowed) and without contamination for operational purposes.



Photo 26 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 brake system.



Photo 27 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 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 3mm each.

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