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Our Ref :CI/TPD18013727/Z

16th October 2018

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FS 7646U

1. We refer to your request dated 01st September 2018 to conduct a physical inspection of a motorcycle bearing registration number FS 7646U (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 31st July 2018.
2. The purpose of this inspection is to primarily 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 01st October 2018 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 020252km.
5. The Motorcycle was observed to have sustained damages at the frontal portion & along its right side. The body parts that were found to have been damaged include its front headlamp & small lamp assembly, left & right wing mirrors, front right fairing, right foot brake pedal, dented fuel tank and cracked mud guard amongst others. Its handle bar was also observed to be dislocated as a result of the accident.
6. This was consistent with the accident's case facts that the motorcyclist was riding along Tampines Avenue 2 towards Tampines Avenue 9 near lamp post 34A on the centre lane of a 3 lanes road where he lost control of his motorcycle and self-skidded. See photo 1 to 8 below.



Photo 1 shows the mileage at the time of inspection was recorded at 020252km.



Photo 2 shows a general view of the front body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained with relatively extensive impact due to the accident collision. Amongst the body parts damaged was its handle bar (arrowed), which was observed to be dislocated.



Photo 3 shows a general view of the rear left body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained minor damages at the rear portion.



Photo 4 shows a general view of the frontal left portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained relatively extensive impact due to the accident collision.



Photo 5 shows a general view of the frontal right portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained relatively extensive impact due to the accident collision.



Photo 6 shows a close-up view of the damaged steering system & ignition system of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained relatively extensive impact due to the accident collision.



Photo 7 shows a close-up view of the fuel tank of the Motorcycle at the time of our inspection. It was observed to be dented due to the accident collision.



Photo 8 shows a close-up view of the foot brake pedal of the Motorcycle at the time of our inspection. It was observed to be dented inwards due to the accident collision.

Tyres and Wheel Rims

7. The condition of the Motorcycle's rear tyre was observed to be in serviceable condition. The tread pattern of the rear tyre was clearly visible. 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. It was also observed to be sufficiently inflated for vehicular operation.
8. As for the front tyre, it was found to be deflated. Further investigation reveals that it sustained torn mark on the outer sidewall likely due to the accident's impact collision. However, the tread pattern was clearly visible. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows: - See photo 9 to 11 below.



Pirelli Diablo 120/70 - 17 (4mm)

Bridgestone (Deflated-Torn) 80/90- 17 (3mm)



Photo 9 shows the front tyre of the Motorcycle at the time of our inspection. It was found to have sustained torn mark on the outer sidewall likely due to the accident's impact collision. However, the tread pattern was clearly visible.



Photo 10 shows the front tyre of the Motorcycle was deflated at the time of our inspection. It was found to have sustained torn mark on the outer sidewall likely due to the accident's impact collision. However, the tread pattern was clearly visible.



Photo 11 shows the rear tyre of the Motorcycle at the time of our inspection. The rear tyre was observed to be in serviceable condition with remaining tread depth of approximately 4mm. It was also sufficiently inflated for vehicular operation.

9. The front & rear tyres were wrapped around alloy wheel rim that was found to be without any significant damage. See photo 12 below.



Photo 12 shows the front tyre was wrapped around alloy wheel rim that was found to be without any significant damage.

Engine & Drive Train

10. 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.
11. The gear chain of the motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. Free play tension test was also conducted & found adequately acceptable. See photo 13 - 15 below.



Photo 13 shows no sign(s) or indication(s) of fluid leak observed around the engine area of the Motorcycle.



Photo 14 shows the general 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.



Photo 15 shows the general 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. Free play tension was also observed & found adequately acceptable.

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 on its steering system. It was found to be dislocated as a result of the accident, hence causing the whole steering system not to be in a serviceable condition.
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 pulling 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. Static brake test conducted on the front brake reveals that it was not in serviceable condition. There was no resistance felt upon gripping the brake lever. Further investigation on the front brake reservoir found that brake fluid leakage from the connection to the brake hose right after the brake fluid reservoir. We could visually see the brake fluid leakage upon gripping the brake lever each time.
15. As for the rear brake a static brake tests conducted on the Motorcycle had appeared to indicate that the rear brake system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon stepping on the rear brake foot padle. This would indicate that there was no leakage of pressure/vacuum in the rear brake mechanical parts. Our checks on the rear brake fluid had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.
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 dislocation of its steering system, which had rendered the Motorcycle immobility for the operational tests. We were also not able to push the motorcycle manually forward and backward normally, simulating movement of the Motorcycle, for the operational tests purposes. See photo 16 - 22 below.



Photo 16 shows the front handle bar was observed to be dislocated as a result of the accident. Hence, we are not able to conduct any tests on the steering system of the Motorcycle.



Photo 17 shows the front brake calliper, front brake disc and brake pad of the Motorcycle (arrowed), which are all part of the components in the front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage.



Photo 18 shows the front brake fluid observed to be sufficient at time of our inspection. However, fluid leakage was observed came from the connecting hoses right after the brake fluid reservoir. (Circled)



Photo 19 shows the front brake fluid observed to be sufficient at time of our inspection. However, fluid leakage was observed came from the connecting hoses right after the brake fluid reservoir. (Circled)



Photo 20 shows the front brake pad of the Motorcycle (arrowed), which are still with sufficient frictional material for operational purposes.



Photo 21 shows the rear brake pad of the Motorcycle (arrowed), which are still with sufficient frictional material for operational purposes.



Photo 22 shows a static brake test performed on the rear brake. It was found to be in a serviceable condition.

Conclusion

17. At the time of our inspection of the Motorcycle, its steering system and front braking system could not be tested (due to damages & fluid leakage as a result of the accident). Its rear braking system was however found to be in serviceable condition.
18. Notwithstanding that the steering system could not be tested, the observations gathered from our physical inspection of the Motorcycle had indicated no evidence to suggest possible mechanical failure to the Motorcycle that may have contributed to the accident.
19. The rear tyre was observed to be in serviceable condition. The tread pattern of the rear tyre was clearly visible. 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. It was also observed to be sufficiently inflated for vehicular operation. It was sufficiently inflated for vehicular operation with remaining tread depth of approximately 4mm.
20. As for the front tyre, it was found to be deflated. Further investigation reveals that it sustained torn mark on the outer sidewall likely due to the accident's impact collision. However, the tread pattern was clearly visible with remaining tread depth of approximately 3mm.
21. 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 steering system and front braking system (as a result of the accident), which had rendered the Motorcycle immobility.



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