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21st August 2018

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FX 7859X

1. We refer to your request dated 17th May 2018 to conduct a physical inspection of a motorcycle bearing registration number FX 7859X (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 25th April 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 12th June 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 not recorded due to the extensive damages sustain as a result of the accident.
5. The Motorcycle was observed to have sustained extensive damages at the frontal portion & along its left side, right side portion. The body parts that were found to have been damaged include its speedo meter, front left & right wing mirrors, brake foot pedal, handle bar, broken hand brake, bent exhaust pipe, broken front wheel rim and bent rear brake pedal amongst others. Its front fork assembly was also observed to be dislocated as a result of the accident. See photo 1 to 4 below.



Photo 1 shows a general view of the front left 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 front fork, which was observed to be dislocated.



Photo 2 shows a general view of the front right 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 front fork (arrowed), which was observed to be dislocated.



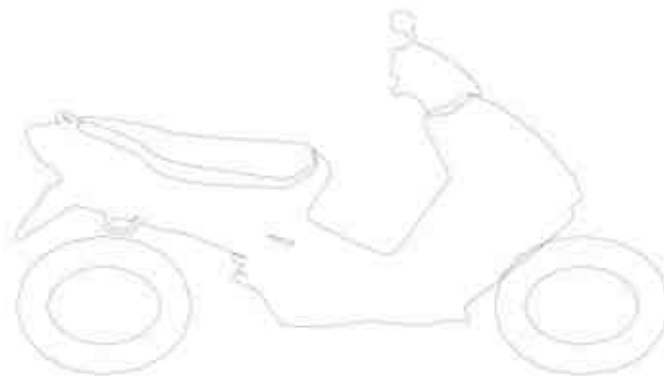
Photo 3 shows a general view of the rear left body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained minor damages at the rear portion as a result of the accident.



Photo 4 shows a general view of the dislodged speedometer, dislocated handle bar & damaged wing mirrors 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.

Tyres and Wheel Rims

6. The conditions of the Motorcycle's tyres were observed to be in serviceable condition. The tread pattern of the 2 tyres 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 2 tyres. The tyres were observed to be sufficiently inflated for vehicular operation. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-



Vee Rubber Diamond Star 80/90 - 17(6mm)

IRC Wings NR 77 90/80 - 17 (2mm)

7. The rear tyre was wrapped around an alloy wheel rim that was found to be without any significant damage. Whereas for the front tyre was observed to be wrapped around an alloy wheel rim that was found to be broken into several pieces due to the accident's collision impact at the material time of the accident. See photo 5 & 6 below



Photo 5 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 2mm. However, the wheel rim was observed to be broken into several pieces due to the accident's impact collision.



Photo 6 shows the rear tyre of the Motorcycle. The pattern of the tread was 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. The front tyre was observed to be in serviceable condition with remaining tread depth of approximately 4mm.

Engine & Drive Train

8. Upon examination of the engine area of the Motorcycle, we had observed that the various engine related parts and components were intact with no visible damage. The engine underside was however observed to be covered with fluid, suggesting leakage of fluid. There was no accumulation of dust and/or dirt particles on the engine housing where the fluid stains had formed. This would indicate that the fluid leakage was a fresh leak and likely to be a result of the accident.
9. 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 7 – 9 below.



Photo 7 shows sign(s) or indication(s) of fluid leakage stain observed around the engine undercarriage area of the Motorcycle.



Photo 8 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 9 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

10. 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 handle bar, front wheel rim & steering system. It was found to be dislocated & broken as a result of the accident, hence causing the whole steering system to be in a state of immobility.
11. 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 calliper and drum revealed all to be intact and without damage except for the rear brake foot pedal & front hand brake lever were found to be damaged due to the accident's impact collision. However, there were no visible tear or cut observed on the connecting hoses and cables.
12. A static brake test was unable to be conducted on the Motorcycle's both front & rear brake due to the damages sustained. The front hand brake lever was found to be broken & rear brake pedal was found bent as a result of the accident's impact collision. However, our checks on the brake fluid had indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.
13. 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 damages of its both system, which had rendered the Motorcycle immobility for the operational tests. We were not able to push the motorcycle manually forward and backward, due to the damages sustained on the Motorcycle. See photo 10 - 13 below.



Photo 10 shows the front fork (circled) 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 11 shows the front brake calliper, front brake disc and front brake hose of the Motorcycle, which are all part of the components in the front brake system of the Motorcycle. Our further observation had revealed that it was not affected although damages found on the wheel rim.



Photo 12 shows the rear brake of the Motorcycle. It was found to be unaffected by the accident.



Photo 13 shows the front brake fluid reservoir that was found to be sufficient level despite broken hand brake lever due to the accident.

Conclusion

14. At the time of our inspection of the Motorcycle, its steering system & braking system could not be tested (due to damages as a result of the accident) due to the accident's collision impact.
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 engine system, steering system and braking system were all damaged as a result of the accident.
16. The tyres of the Motorcycle were found to be in a serviceable condition. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the tyre. It was sufficiently inflated for vehicular operation with remaining tread depth of approximately 2mm & 4mm each.
17. 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 & braking system (as a result of the accident), which had rendered the Motorcycle immobile.



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