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05th July 2018

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FE 4054Y

1. We refer to your request dated 22nd May 2018 to conduct a physical inspection of a Motorcycle bearing registration number FE 4054Y (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 12th January 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 22nd 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 recorded at 483622km.
5. The Motorcycle was observed to have sustained severe damages at the frontal portion, rear portion & along both its left side and right side. The body parts that were found to have been damaged includes its missing front head lamp, ERP unit & bracket, handle bar, front wing mirrors, chassis structure, seat assembly, fuel tank and rear portion amongst others. Its front forks assemblies were also observed to be dislodged as a result of the accident.
6. This was likely due to the consistency of the accident's case fact that on 12th January 2018 about 0217hrs, a Malaysian Motorcycle (JPW6319) was travelling straight along SLE (CTE) 3km. When it collided onto the rear of Motorcycle (FE4053Y). See photos 1 to 7.



Photo 1 shows the mileage of the Motorcycle at the time of our inspection was recorded at 483622km.



Photo 2 shows the Motorcycle number plate for identification.



Photo 3 shows a general view of the front right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have 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 broken into 2 pieces.



Photo 4 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 damages at the frontal portion, rear portion, along both its left side and right side.



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



Photo 6 shows a close-up view of the frontal portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively extensive impact including damages to the fuel tank due to the accident collision.



Photo 7 shows a close-up view of the rear portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively extensive impact 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.
8. As for the front tyre it was found to be deflated likely due to the accident impact. However, the tread pattern of the front 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 front tyre. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-



FKR Epsilon 90/90 – 18(3mm)

Dunlop 80/90 - 18 (4mm)

9. The rear tyre was observed to be wrapped around alloy wheel rims that were found to be without any significant damage. It was found to be in serviceable condition with adequately inflated for operational purpose.
10. As for the front wheel rim, it was noted to have sustained with damages (cracked) at time of our inspection. The front tyre was found to be deflated due to the cracked wheel rim as a result of the accident's collision. See photo 8 – 12 below



Photo 8 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 3mm. The tyre was also observed to be sufficiently inflated for vehicular operation. There was no significant damage observed on the rear wheel rim & tyre.



Photo 9 shows the front tyre of the Motorcycle at the time of our inspection. 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.



Photo 10 shows the cracked wheel rim on front tyre of the Motorcycle at the time of our inspection.



Photo 11 shows the front tyre of the Motorcycle at the time of our inspection. The pattern of the tread was measured and found to be around 4mm & the thread was clearly visible.



Photo 12 shows the rear tyre of the Motorcycle at the time of our inspection. The pattern of the tread was measured and found to be around 3mm & the thread was clearly visible.

Engine & Drive Train

11. 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 reddish 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.
12. The gear chain of the Motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. See photo 13 – 16 below.



Photo 13 shows sign(s) or indication(s) of fluid leakage observed around the engine's underside area of the Motorcycle.



Photo 14 shows sign(s) or indication(s) of fluid leakage observed around the engine's area of the Motorcycle.



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.



Photo 16 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.

Steering System & Braking System

13. For this case, we were not able to conduct any test(s) on the steering system of the Motorcycle due to the damages on its front fork. The front fork was found to be broken as a result of the accident, hence causing the whole steering system to be in a state of immobility.
14. 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, drum and brake foot pedal, revealed all to be intact. However, some braking components were noted to be extensively damaged such as hand brake lever, brake pedal & brake fluid reservoir at the material time of our inspection.

15. Static brake tests was unable to be conducted on the Motorcycle braking system due to some braking components were noted to be extensively damaged such as hand brake lever & brake fluid leakage (broken brake hose) at the material time of our inspection.
16. For this case, we were not able to carry out any operational tests to the steering system and brake system of the Motorcycle due to the damages on its front forks, which had rendered the Motorcycle immobility for the operational tests. See photo 17 to 23 below.



Photo 17 shows the hand brake lever (arrowed) was observed to be broken due to the result of the accident. Hence, we are unable to conduct any tests on the braking system of the Motorcycle.



Photo 18 shows the rear brake pedal (arrowed) was observed to be crushed inwards as a result of the accident. Hence, we are unable to conduct any tests on the braking system of the Motorcycle.



Photo 19 shows the front fork (circled) was observed to be dislodged as a result of the accident. Hence, we are unable to conduct any tests on the steering system of the Motorcycle.



Photo 20 shows the front brake calliper and front brake disc of the Motorcycle (arrowed in red), 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 except for a cut brake fluid hose due to the accident.



Photo 21 shows the front brake pad, which is part of the components in the front brake system of the Motorcycle. Our visual checks had revealed that it was still in serviceable condition, intact with no visible damage & sufficient frictional padding.



Photo 22 shows the front brake fluid reservoir of the Motorcycle which was observed to be with cut brake fluid hose & damaged brake lever caused by the accident's collision.



Photo 23 shows the rear brake components of the Motorcycle which was observed to be in serviceable condition. No damages was found at time of our inspection.

Conclusion

17. At the time of our inspection of the Motorcycle, its steering system & braking system could not be tested likely due to the damages as a result of the accident.
18. 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. Its tread depth was measured & found to be around approximately 3mm.
19. As for the front tyre, it was found to be deflated likely due to the cracked wheel rim as a result of the accident's collision. However, the tread pattern of the front tyre was clearly visible with tread depth of 4mm. 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.
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 damages on its steering system & braking system (as a result of the accident), which had rendered the Motorcycle's immobility.



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