



Your Ref: TP/IP/18933/2018  
Our Ref : CI/TPD18012780/Z

18<sup>th</sup> July 2018

**Fatal Accident Investigation Team**  
Traffic Police Department  
Singapore Police Force  
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Singapore 408865

### **MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBD 7456C**

1. We refer to your request dated 04<sup>th</sup> April 2018 to conduct a physical inspection of a motorcycle bearing registration number FBD 7456C (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 22<sup>nd</sup> March 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 04<sup>th</sup> May 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 was not recorded at time of inspection due to the severe damages to the ignition system as a result of the accident.
5. The Motorcycle was observed to have sustained extensive damages at the frontal portion, rear portion & along its right side. The body parts that were found to have been damaged include its bent handle bar, damaged in-vehicle unit, broken engine, dislodged meter/headlamp, corrugated fuel tank & damaged rear amongst others as a result of the accident.
6. This was likely due to the consistency of the accident's case facts that the motorcyclist was riding her Motorcycle along Upper Thomson Road towards Sembawang Road on lane 1 of 3 lanes road. At a non-signalised junction of Tagore Drive near L/P 260, the motorcyclist lost control of her motorcycle and skidded. She was flung over to the opposite direction of the traffic. See photo 1 to 6.



**Photo 1** shows the speedo-meter of the Motorcycle where it was found dislodged from the original installation.



**Photo 2** shows a general view of the front portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained with damages due to the accident collision. (Circled)



**Photo 3** shows a general view of the right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained extensive damages at the frontal, rear portion & along its right side. (Circled)



**Photo 4** shows a closer view of the right side of the engine of the Motorcycle at the time of our inspection that was observed to have sustained with extensive damages due to the accident collision. (Circled)





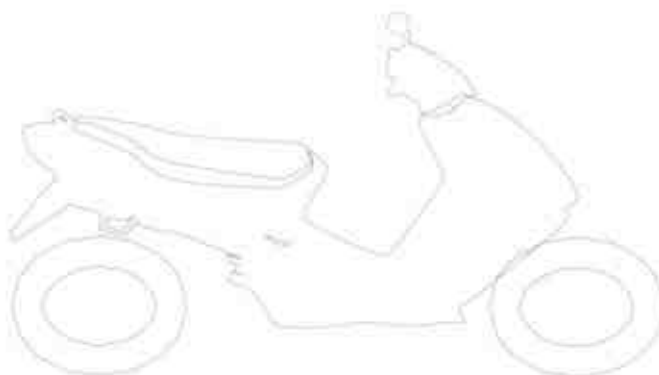
**Photo 5** shows the damaged engine coolant reservoir & radiator as a result of the accident.(Circled)



**Photo 6** shows a rear view of the Motorcycle at the time of our inspection. It was observed to be in good condition not affected by the accident.

## Tyres and Wheel Rims

7. The condition of the Motorcycle's rear tyre was observed to be in serviceable condition whereas the front tyre was found to be deflated likely due to the accident impact. However, 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 rear tyre was 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:-



Bridgestone 190/50 - 17 (3mm)

Bridgestone 120/70 - 17 (3mm)

8. The rear tyre was wrapped around alloy wheel rim that was found to be without any significant damage. As for the front wheel rim, it was observed to have sustained with damages due to the accident's impact. See photo 7 & 8 below.



**Photo 7** shows the rear tyre of the Motorcycle. 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.



**Photo 8** shows the front 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. Except for it was observed to be deflated likely due to the accident's impact.

### Engine & Drive Train

9. Upon examination of the Motorcycle's engine area, we had observed that the engine block had sustained with extensive damages due to the accident's collision impact. Hence, causing the operating fluids such as engine fluid to leak from the cracked/ damage areas.
10. 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 9 – 13 below.



Photo 9 shows extensive damages on the engine block. It was observed to be damaged as a result of the accident.





Photo 10 shows the engine was covered with fluid, indication(s) of fluid leakage stain observed around the engine area of the Motorcycle.



Photo 11 shows the gear chain of the motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes.





**Photo 12** 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 13** 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**

11. Our checks on the various steering components of the Motorcycle had revealed that its steering system was in not serviceable condition. Its handle bar was found to be bent/ damage likely due to the accident's impact collision.
12. 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.
13. Static brake tests conducted only on the Motorcycle rear brake had appeared to indicate that it 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 brake system. Our checks on the brake fluid had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.
14. As for the front brake, its brake fluid reservoir was found to have been broken/cracked & the connecting hose was observed to be cut due to the accident's impact collision. However, the Motorcycle's braking system like the brake discs, brake callipers, brake pad and brake foot pedal revealed all to be intact and without damage. Our checks on the brake fluid had also indicated that the brake fluid was insufficient level for operational purposes due to the broken brake fluid reservoir.
15. For this case, we were unable to carry out operational test of the Motorcycle's braking system. This was due to the damage steering system as a result of the accident's collision impact.

In general, our observations gathered during the static brake test which indicated that only the rear brake of the Motorcycle was in serviceable condition. See photo 14 - 19 below.



Photo 14 shows the handle bar was observed to be damaged by the accident's impact. It was observed to be misaligned likely due to the accident's impact.



Photo 15 shows the steering system was observed to be damaged likely due to the accident's impact.





Photo 16 shows the fluid brake reservoir for the front brake that was observed to be broken due to the accident. Its brake hose was also found to be cut/damaged.



Photo 17 shows the brake fluid reservoir for the rear brake. It was observed to be at sufficient level not affected by the accident.



**Photo 18** shows the brake pad for the front brake, observed to be in serviceable condition at time of our inspection. The frictional material found to be sufficient for operational purposes.



**Photo 19** shows the brake pad for the rear brake observed to be in serviceable condition at time of our inspection. The frictional material found to be sufficient for operational purposes.

## Conclusion

16. Basing on our physical inspection of the Motorcycle, it appears that the steering system was not in serviceable condition. Its handle bar was found to be bent/ damaged due to the accident's impact collision.
17. The front braking systems of the Motorcycle could not be tested due to the damages sustained to the front brake fluid reservoir & cut front brake fluid hose as a result of the accident. However, further observation reveal that the front brake components such as brake cables, brake calliper brake pad amongst others were in serviceable condition. As for the rear brake, it was observed to be in serviceable condition as per our static brake test.
18. We did not find any evidence(s) to suggest that there was possible mechanical failure to the Motorcycle that may have caused and/or contributed to the accident.
19. The condition of the Motorcycle's rear tyre was observed to be in serviceable condition whereas the front tyre was found to be deflated likely due to the accident impact. However, 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 rear tyre was observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 3 mm.



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 steering system & braking system (as a result of the accident), which had rendered the Motorcycle immobility.



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