



Your Ref: TP/IP/64871/2017  
Our Ref : CI/TPD18002179/N

22 January 2018

**Fatal Accident Investigation Team**

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

**MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBL 2124B**

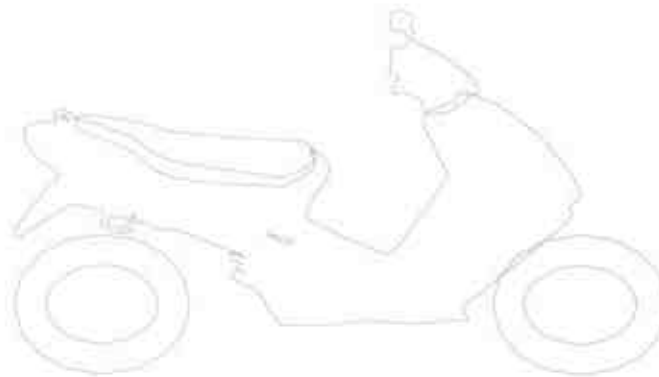
1. We refer to your request on 9 January 2018 to conduct a physical inspection of a motorcycle bearing registration number FBL 2124B (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 2 December 2017.
2. The objective of the inspection is to determine if 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 24 January 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 damage sustained to the odometer display screen as a result of the accident.
5. The Motorcycle had sustained damages all around, significantly at its front portion and right body. Body parts that were found to have been damaged include its headlamp assembly, speedometer, front mudguard, left side mirror, clutch lever left side cover, right side mirror, front brake lever, front brake reservoir, right front fork slider, petrol tank, right side cover, right frame slider, rear brake pedal, right exhaust muffler, rear right side cover and right rear axle slider 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. Both the tyres were observed to be sufficiently inflated for vehicular operation. The tyre brand, tyre size and remaining tread depth of the 2 tyres of the Motorcycle were recorded as follows:-



Pirelli 190/55 R17 (3mm)

Pirelli 120/70 R17 (2mm)

7. 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 – 15 below.



**Photo 1** shows a general view of the rear right body of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around, significantly at its front portion and right body. The mileage of the Motorcycle was not recorded at the time of our inspection due to the damage sustained to the odometer display screen as a result of the accident.



**Photo 2** shows a general view of the left body of the Motorcycle at the time of our inspection. Body parts that were found to have been damaged include its left side mirror, clutch lever and left side cover.



**Photo 3** shows a general view of the right body of the Motorcycle at the time of our inspection. Body parts that were found to have been damaged include its headlamp assembly, speedometer, front mudguard, right side mirror, front brake lever, front brake reservoir, right front fork slider, petrol tank, right side cover, right frame slider, rear brake pedal, right exhaust muffler, rear right side cover and right rear axle slider amongst others.



**Photo 4** shows a closer view of the damaged headlamp assembly, left side cover and right side cover of the Motorcycle at the time of our inspection.





**Photo 5** shows a closer view of the headlamp assembly and speedometer (circled) which were amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the accident.



**Photo 6** shows a closer view of the front mudguard (circled) and right front fork slider (arrowed), which were amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the accident.



**Photo 7** shows a close up view of the front brake lever, front brake reservoir, right handlebar grip and right handlebar end (circled) of the Motorcycle. These parts were amongst the body parts of the Motorcycle which were damaged as a result of the accident.



**Photo 8** shows a closer view of the damage sustained to the odometer display screen of the Motorcycle (circled) as a result of the accident.



Photo 9 shows a closer view of the petrol tank, which was amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.



Photo 10 shows the damaged right side cover and right frame (circled) of the Motorcycle. The damage sustained at the right frame of the Motorcycle was mainly of grazing nature.





**Photo 11** shows the front wheel rim and tyre of the Motorcycle at the time of our inspection. The front tyre was observed to be in serviceable condition and sufficiently inflated for vehicular operation. There was no visible damage observed on the front wheel rim.



**Photo 12** 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 2mm. 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 front tyre.





**Photo 13** shows the damaged right frame slider, rear brake pedal and right side rider footrest (circled) of the Motorcycle. The damages sustained to these parts were mainly of grazing nature.



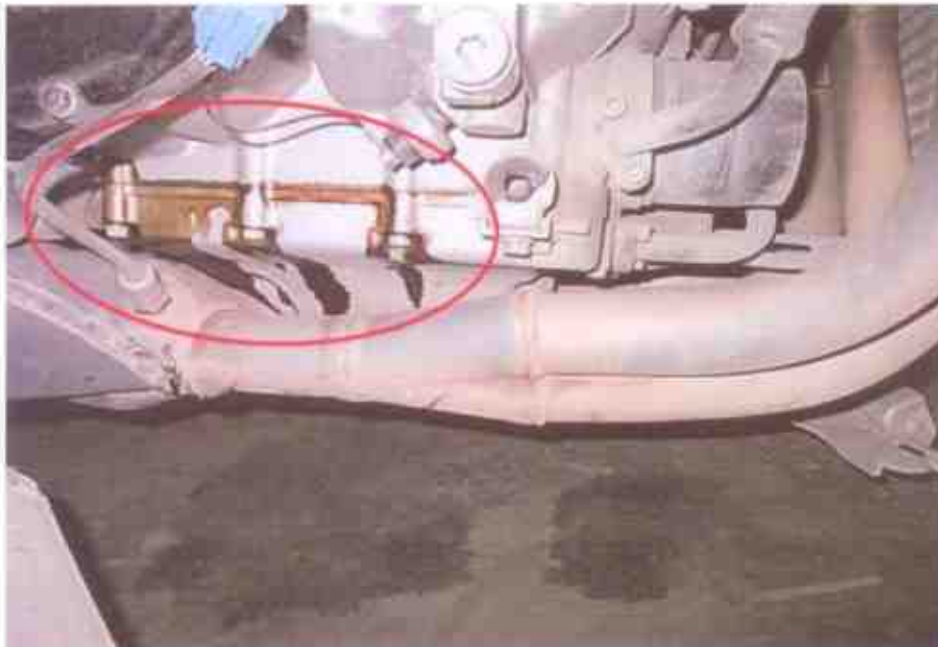
**Photo 14** shows the damaged rear right side cover and right exhaust muffler (circled) of the Motorcycle as a result of the accident.



**Photo 15** 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

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. Wet fluid stains were however observed on the underside of the engine area and clutch plate cover of the Motorcycle. Wet fluid stains were also observed on the damaged right side cover of the Motorcycle, indicating that the fluid leak had occurred as a result of the accident.
9. The gear chain of the Motorcycle, which rotates the rear wheel of the Motorcycle, was found to be in serviceable condition and without any misalignment. It was also adequately lubricated for operating purposes. See photos 16 – 19 below.

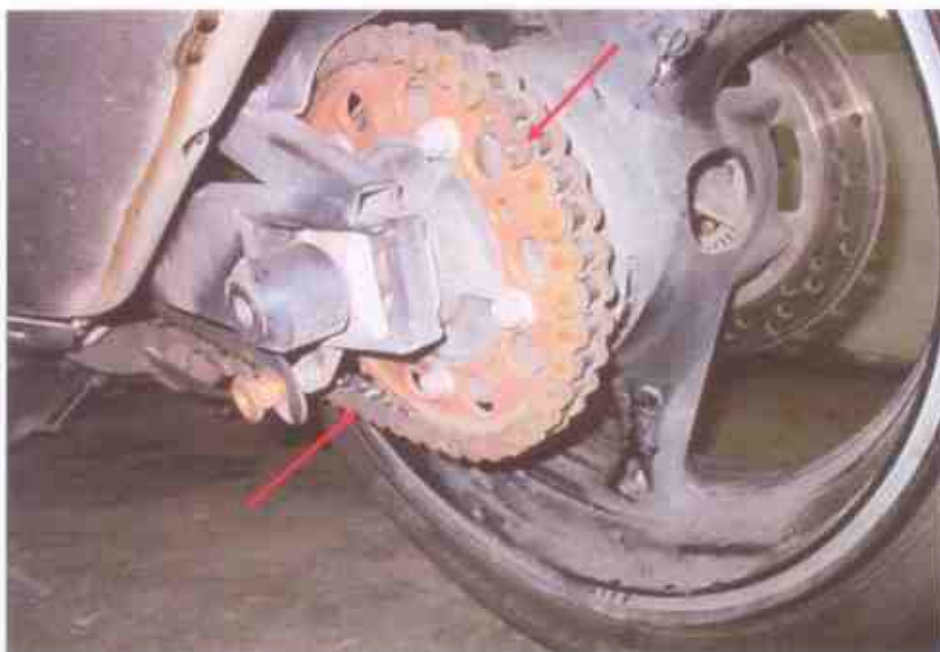


**Photo 16** shows the bottom of the Motorcycle's engine area where wet fluid stains were observed (circled), indicating that the fluid leak had occurred as a result of the accident.



**Photo 17** shows wet fluid stains observed on the clutch plate cover (circled) and damaged right side cover (arrowed) of the Motorcycle, indicating that the fluid leak had occurred as a result of the accident.





**Photo 18** 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 19** 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**

10. Our checks on the various steering components of the Motorcycle had revealed that its steering system was in serviceable condition. Its front fork and fork bracket were both found to be intact and undamaged. Turning the handlebars towards the left and right also did not produce any abnormal free play and/or resistance.
11. The clutch system of the Motorcycle was observed to be of a hydraulic type, where hydraulic (clutch fluid) pressure is needed to effectively engage and disengage the clutch. The clutch is disengaged by pressing the clutch lever at the Motorcycle's left handlebar.
12. Our visual examination of the various components in the Motorcycle's hydraulic clutch system like the clutch lever and clutch hoses revealed all to be intact and without damage. There was also no leakage of clutch fluid observed along the clutch hoses. This was from the respective clutch fluid reservoir at the left handlebar of the Motorcycle. The clutch fluid was found to be of sufficiently level and without any contamination. We however were unable to carry out an operational test of the Motorcycle's hydraulic clutch system due to the damage sustained to the clutch lever.
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 pressing the brake lever at the Motorcycle's right handlebar 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. Our visual examination of the various components in the Motorcycle's braking system like the brake discs, brake calipers, brake lever, brake foot pedal and brake hoses revealed all to be intact and without damage. There was also no leakage of brake fluid observed along the brake hoses. This was from the respective brake fluid reservoirs to the front brake caliper and rear brake caliper of the Motorcycle. The brake fluid for the front brake and rear brake was also found to be of sufficiently level and without any contamination.

15. We subsequently carried out an operational test of the Motorcycle's rear braking system. This was done by manually pushing the Motorcycle forward and backward, simulating the Motorcycle in motion, and thereafter engaging the rear brake of the Motorcycle. At the end of the short operational test, we did not observe any abnormal behaviour of the Motorcycle's rear braking system. The rear wheel of the Motorcycle was able to stop rotating immediately upon stepping on the brake pedal. We however were unable to carry out an operational test of the Motorcycle's front braking system due to the damage sustained to the front brake lever.
16. In general, the observations gathered during the brake test had indicated that the rear braking system of the Motorcycle was in serviceable condition. See photos 20 – 24 below.

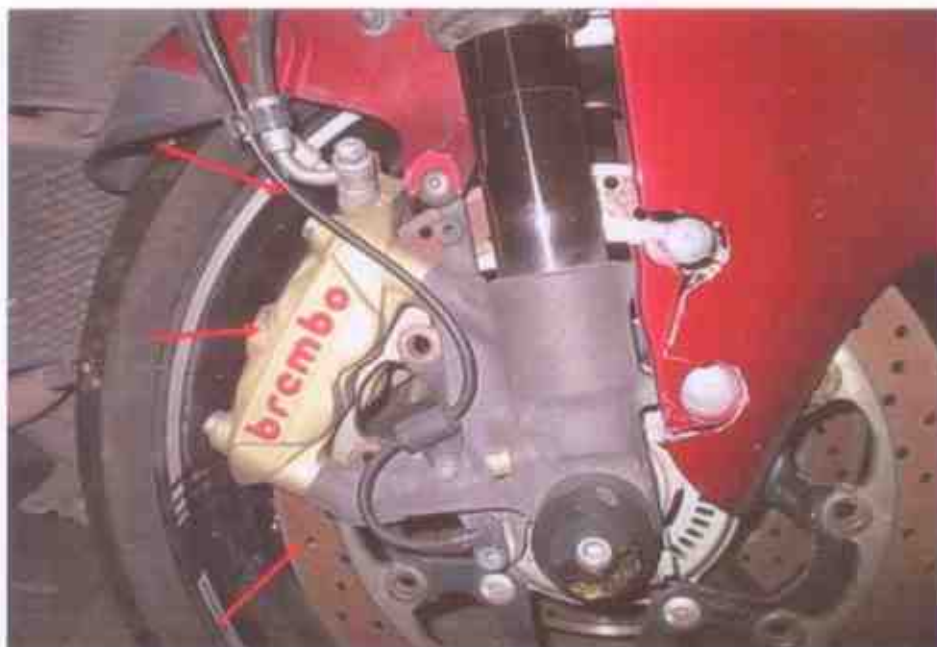


**Photo 20** shows the front wheel of the Motorcycle turned towards its full right. Turning the Motorcycle's handlebars towards the left and right did not produce any abnormal free play and/or resistance. This would indicate that the steering system of the Motorcycle was in serviceable condition at the time of our inspection.





**Photo 21** shows a close up view of the clutch pump, clutch lever, clutch fluid reservoir and clutch hose (arrowed) of the Motorcycle, which are all part of the components in the hydraulic clutch system of the Motorcycle. Our visual checks of these various components revealed all to be intact with no visible damage except for the clutch lever. The hydraulic clutch fluid was observed to be of sufficient level and without contamination for operational purposes. No leakage of clutch fluid was also observed. We were unable to carry out an operational test of the Motorcycle's hydraulic clutch system due to the damage sustained to the clutch lever (circled).



**Photo 22** 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 23** shows the brake fluid reservoir for the front brake of the Motorcycle. The brake fluid was observed to be of sufficient level and without contamination for operational purposes. We were unable to carry out an operational test of the Motorcycle's front braking system due to the damage sustained to the front brake lever (circled).



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

### Conclusion

17. At the time of our inspection of the Motorcycle, its steering system and rear braking system were found to be in serviceable condition. Its hydraulic clutch system and front braking system could not be tested (due to damage as a result of the accident).
18. Notwithstanding that the hydraulic clutch system and front braking 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 2 tyres of the Motorcycle were found to be in 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 2 tyres. The 2 tyres were sufficiently inflated for vehicular operation with remaining tread depth of approximately 2mm each.



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