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Your Ref: TP/IP/03829/2019
Our Ref : CI/TPD19004306/N

15 April 2019

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

**MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBB 8585S**

1. We refer to your request on 20 February 2019 to conduct a physical inspection of a motorcycle bearing registration number FBB 8585S (herein referred to as **"Motorcycle"**), which was involved in a fatal road traffic accident on 22 January 2019.

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 29 March 2019 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.

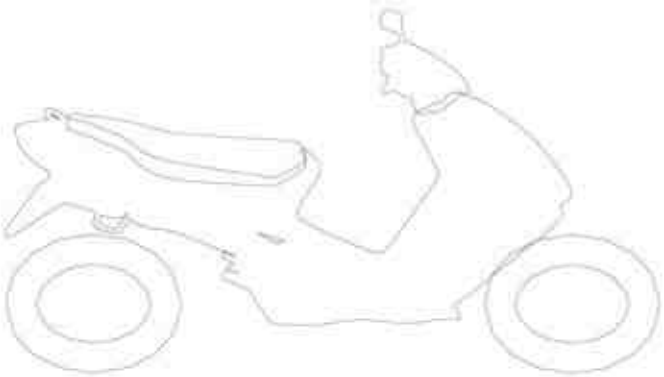
**General Condition**

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 left body. Body parts that were found to have been damaged include its headlamp assembly, speedometer, front mudguard, left side mirror, clutch lever, right side mirror, front brake lever, front brake fluid reservoir, petrol tank, rear right footrest, left exhaust muffler and left rear side cover 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:-



Bridgestone 180/55 R17 (4mm) Bridgestone 120/70 R17 (3mm)

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 – 12 below.

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**Photo 1** shows a general view of the rear body of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around, significantly at its front portion and left 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, fuel tank and left rear side cover (circled).


**Photo 3** shows a general view of the right front 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, left side mirror, clutch lever, right side mirror, front brake lever, front brake fluid reservoir, petrol tank, rear right footrest, left exhaust muffler and left rear side cover amongst others.

**Photo 4** shows a closer view of the headlamp assembly (circled) and speedometer (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 5** shows a closer view of the front mudguard (circled) which was 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 close up view of the front brake lever, front brake fluid reservoir, left side mirror, clutch lever, left handlebar grip and left handlebar end of the Motorcycle. These parts were amongst the body parts of the Motorcycle which were damaged as a result of the accident.

**Photo 7** 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 8** shows the damaged left side engine cover and left frame (circled) of the Motorcycle. The damage sustained at the left frame of the Motorcycle was mainly of grazing nature.

**Photo 9** 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 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 front tyre.

**Photo 10** shows the damaged right rear footrest (circled) of the Motorcycle.


**Photo 11** shows the damaged left rear side cover and left exhaust muffler (circled) of the Motorcycle as a result of the accident.

**Photo 12** 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 4mm. 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 on the right side of the Motorcycle were intact with no visible damage. There was also no fluid leak and/or fluid stain found around the right engine area of the Motorcycle. The various left engine components had sustained damage of grazing nature as a result of the accident however the engine components were still intact. There was also no fluid leak and/or fluid stain found around the left engine area of the Motorcycle.

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 13 – 16 below.

**Photo 13** shows the right side of the engine of the Motorcycle at the time of our inspection. The various engine related parts and components were found to be intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the right engine area of the Motorcycle.

**Photo 14** shows the left side of the engine of the Motorcycle at the time of our inspection. The various left engine components had sustained damage of grazing nature as a result of the accident (circled) however the engine components were still intact. There was also no fluid leak and/or fluid stain found around the left engine area of the Motorcycle.

**Photo 15** 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 16** 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. For this case, we were not able to conduct any test(s) on the steering system of the Motorcycle due to the damage of its front fork. The front fork was found to be bent inwards as a result of the accident.

11. 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 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.

12. For this case, we were not able to carry out any operational tests to the steering system and front braking system of the Motorcycle due to the damage of its front fork, which had rendered the Motorcycle immobile for the operational tests. We were not able to push the motorcycle manually forward and backward, simulating movement of the Motorcycle, for the operational tests.

13. 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. The brake fluid for the front brake and rear brake was also found to be of sufficient level and without any contamination. There was 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. However a leakage of brake fluid from the front brake fluid reservoir was observed when the front brake lever was depressed. The leakage of brake fluid from the front brake fluid reservoir could have been due to the accident as the front brake fluid reservoir was found to be bent inwards causing a crack to the front brake fluid reservoir.

14. Static brake tests conducted on the Motorcycle had appear to indicate that the rear brake system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon pressing the brake pedal. This would indicate that there no leakage of pressure/vacuum in the 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.

15. In general, the observations gathered during the brake test had indicated that the braking system of the Motorcycle was in serviceable condition. See photos 17 – 20 below.


**Photo 17** shows the front right fork of the Motorcycle. The front right fork (arrowed) was observed to be bent inwards as a result of the accident. We were hence not able to conduct any tests on the steering system of the Motorcycle.


**Photo 18** 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 19** shows the brake fluid reservoir for the front brake of the Motorcycle. A leakage of brake fluid from the front brake fluid reservoir was observed (circled) when the front brake lever was depressed (arrowed).

**Photo 20** 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

16. Basing on our physical inspection of the Motorcycle, it appears that the steering system and braking system of the Motorcycle were all in serviceable condition. 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.

17. 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 3mm each.

18. 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 front fork (as a result of the accident), which had rendered the Motorcycle immobile.

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