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Our Ref : CI/TPD20001852/N

31 March 2020

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE JSJ 1562

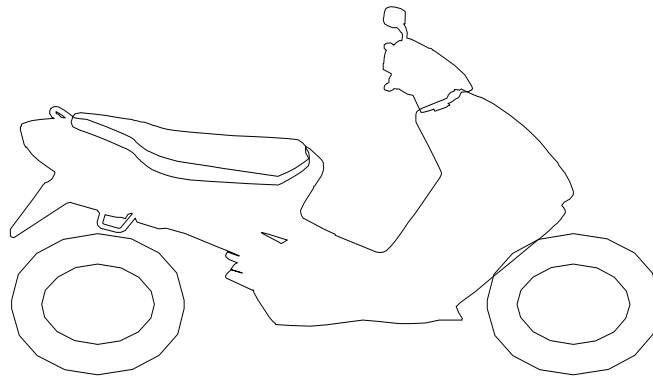
1. We refer to your request on 3 February 2020 to conduct a physical inspection of a motorcycle bearing registration number JSJ 1562 (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 20 November 2019.
2. The objective of the inspection is to determine if 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 31 March 2020 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 58, 110km.
5. The Motorcycle had sustained damages at its frontal portion. Body parts that were found to have been damaged include its headlight assembly, front cowling, front fork assembly, side cowlings, side mirrors, front brake lever, right handlebar end, left handlebar grip and top box, amongst others.

Tyres and Wheel Rims

6. The condition of the rear tyre 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 rear tyre. The tread pattern of the rear tyre was clearly visible. The rear tyre was observed to be sufficiently inflated for vehicular operation.
7. We found the front tyre to be punctured most likely as a result of the accident. However we did not observe any tear and/or burst mark(s) on the sidewalls as well as across the tread of the front tyre. The tread pattern of the front tyre was clearly visible.
8. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-



Maxxis 80/90 - 17 (3mm)

Michelin 70/90 - 17 (3mm)
(Deflated)

9. The 2 tyres were wrapped around alloy wheel rims. At the time of our inspection, we did not observe any visible damage on the rear wheel rim of the Motorcycle. However we did observe that the front wheel rim was bent. See photos 1 – 14 below.



Photo 1 shows the speedometer gauge of the Motorcycle where the mileage recorded at the time of our inspection was 58, 110km (circled).



Photo 2 shows a general view of the frontal portion of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages at its frontal portion.



Photo 3 shows a general view of the right front body of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages at its frontal portion. Body parts that were found to have been damaged include its headlight assembly, front cowlings, front fork assembly, side cowlings, side mirrors, front brake lever, right handlebar end, left handlebar grip and top box, amongst others.



Photo 4 shows a closer view of the headlight assembly which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident (arrowed).



Photo 5 shows a closer view of the front brake lever, right side mirror and right handlebar end (arrowed) of the Motorcycle. These parts were amongst the body parts of the Motorcycle which were damaged as a result of the accident.



Photo 6 shows a closer view of the front mudguard, which was amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.



Photo 7 shows a closer view of the front cowling which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident.



Photo 8 shows a closer view of the right cowling which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident.



Photo 9 shows a closer view of the left cowling which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident.



Photo 10 shows a closer view of the missing left side mirror and left handlebar grip (arrowed), which were amongst the body parts of the Motorcycle that had sustained damage as a result of the accident (circled).



Photo 11 shows the broken top box of the Motorcycle as a result of the accident.



Photo 12 shows the bent front wheel rim (circled) and deflated front tyre (arrowed) of the Motorcycle as a result of the accident at the time of our inspection.



Photo 13 shows the punctured front tyre of the Motorcycle most likely as a result of the accident at the time of our inspection. The front tyre was observed to be in serviceable condition with remaining tread depth of approximately 3mm. The pattern of the tread was also 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 14 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

10. Upon examination of the Motorcycle's engine area, we had observed that the various engine related parts and components were intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the engine area of the Motorcycle.
11. The gear chain of the motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. See photos 15 – 18 below.



Photo 15 shows the left 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 left engine area of the Motorcycle.



Photo 16 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 17 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.

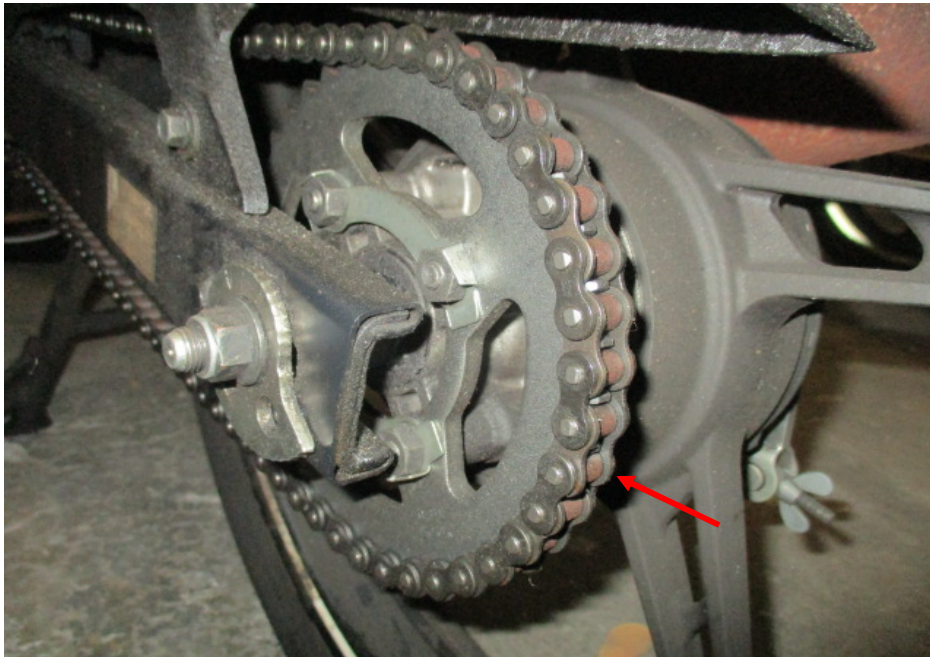


Photo 18 shows the closer view of the gear chain (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.

Steering System & Braking System

12. 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 forks and steering stem. The left front fork was found to be bent inwards as a result of the accident. The steering system was observed to be broken as a result of the accident.
13. 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 caliper, drum, brake lever and brake foot pedal, revealed all to be intact and without damage. There was also no leakage of brake fluid observed along the front brake hose. This was from the respective front brake fluid reservoir to the front brake caliper of the Motorcycle. The brake fluid for the front brake was found to be of sufficient level for operating purposes. However the brake fluid was found to be slightly contaminated. There was also no visible tear or cut observed on the connecting hoses and cables.

14. Static brake tests conducted on the Motorcycle had appeared to indicate that the brake system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon pressing the front brake lever. This would indicate that there's no leakage of pressure/vacuum in the front brake system.
15. 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 forks and steering stem, 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. See photos 19 – 23 below.



Photo 19 shows the front forks of the Motorcycle. The front left 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 20 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.

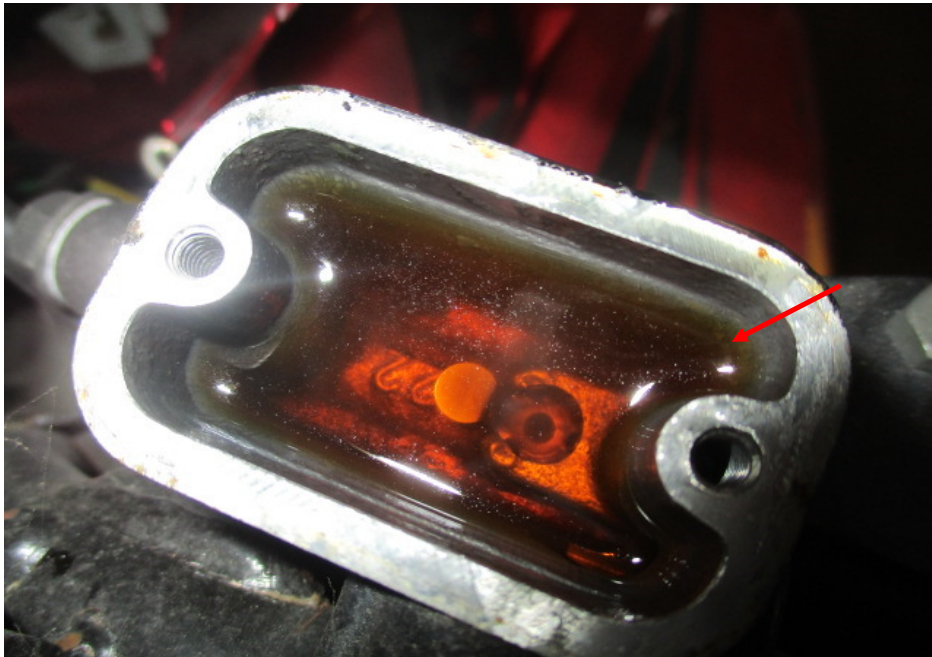


Photo 21 shows the brake fluid reservoir for the front brake of the Motorcycle. The brake fluid was found to be of sufficient level for operating purposes. However the brake fluid was found to be slightly contaminated (arrowed).




Photo 22 shows the front brake lever being depressed. There was some resistance felt (spongy like feel) upon pressing the front brake lever (arrowed). This would indicate that there is no leakage of pressure/vacuum in the brake system.



Photo 23 shows the rear wheel of the Motorcycle. The type of brake system for the rear wheel was of a mechanical type, controlled by the brake foot pedal of the Motorcycle. Our checks of the cable (arrowed), spring and drum which are all part of the components in the rear brake system of the Motorcycle reveal all to be intact and without damage.

Conclusion

16. 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 steering system was damaged as a result of the accident. The braking system of the Motorcycle was observed to be in serviceable condition.
17. The 2 tyres of the Motorcycle were found to be in serviceable condition (which included the deflated front tyre). 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 rear tyre was sufficiently inflated for vehicular operation. Both tyres had 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 forks (as a result of the accident), which had rendered the Motorcycle immobile.

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