LVK Auto Consultants Pte Ltd

Company Registration No. 199607198R

51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108

Your Ref : TP/IP/55759/2018
Our Ref :CI/TPD18019471/Z

31st December 2018

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE JRB 2580

1. We refer to your request dated 19th October 2018 to conduct a physical inspection of a Motorcycle bearing registration number JQV 5714 (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 29th September 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 19th November 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 083510km.

5. The Motorcycle was observed to have sustained severe damages at the frontal portion, along both its left side and right side. The body parts that were found to have been damaged includes its dislodged handle bar, missing wing mirrors, damaged radiator, buckled gear shift pedal, left & right fairing and headlamp amongst others. Its front forks assemblies were also observed to be damaged as a result of the accident.

6. This was likely due to the consistency of the accident's case fact that on 29th September 2018 about 1311hrs, a Motor Lorry (YN 1369K) was travelling straight along PIE (Tuas) on lane 2 of a 5 lanes road when he lost control of the vehicle and veered to the left. The said Motor Lorry skidded and collided onto a Motor Cycle (JRB 2580) and a Motor Van (GR 8267S). See photos 1 to 6.

Photo 1 shows the mileage of the Motorcycle at the time of our inspection was recorded at 083510km.

Photo 2 shows the Motorcycle number plate for identification.

Photo 3 shows a semi close-up view of the front portion 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 steering system (arrowed), which was observed to be broken.

Photo 4 shows a general view of the front portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained extensive damages at the frontal portion, along both its left side and right side.

Photo 5 shows a close-up view of the front fork of the Motorcycle at the time of our inspection. It was observed to be damaged due to the accident collision.

Photo 6 shows a close-up view of the front left wing mirror of the Motorcycle at the time of our inspection. It was observed to be missing likely due to the accident collision.

Photo 7 shows a semi close-up view of the headlamp & front portion of the Motorcycle at the time of our inspection. It was observed to be damaged due to the accident collision.

Photo 8 shows a close-up view of the front fork of the Motorcycle front wheel at the time of our inspection. It was observed to be damaged due to the accident collision.

Photo 9 shows a close-up view of the exhaust manifold of the Motorcycle at the time of our inspection. It was observed to be buckled likely due to the accident collision.

Photo 10 shows a close-up view of the left hand side of the Motorcycle at the time of our inspection. It was observed to be damaged due to the accident collision.

Photo 11 shows a general view of the right portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively extensive impact including damages to the steering system as a result of the accident collision.

Photo 12 shows a general view of the right portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively extensive impact including damages to the steering system as a result of 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. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-

Maxxis 80/90 – 17(4mm)

Maxxis 70/90 – 17(3mm)

8. The 2 tyres were 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. See photo 13 & 14 below

Photo 13 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 4mm. 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 14 shows the front tyre of the Motorcycle at the time of our inspection. The pattern of the tread was clearly visible with remaining tread depth of approximately 3mm. 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.

Engine & Drive Train

9. 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.

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 15 – 19 below.

Photo 15 shows no sign(s) or indication(s) of fluid leakage observed around the engine's underside area of the Motorcycle.

Photo 16 shows no sign(s) or indication(s) of fluid leakage observed around the engine's area of the Motorcycle.

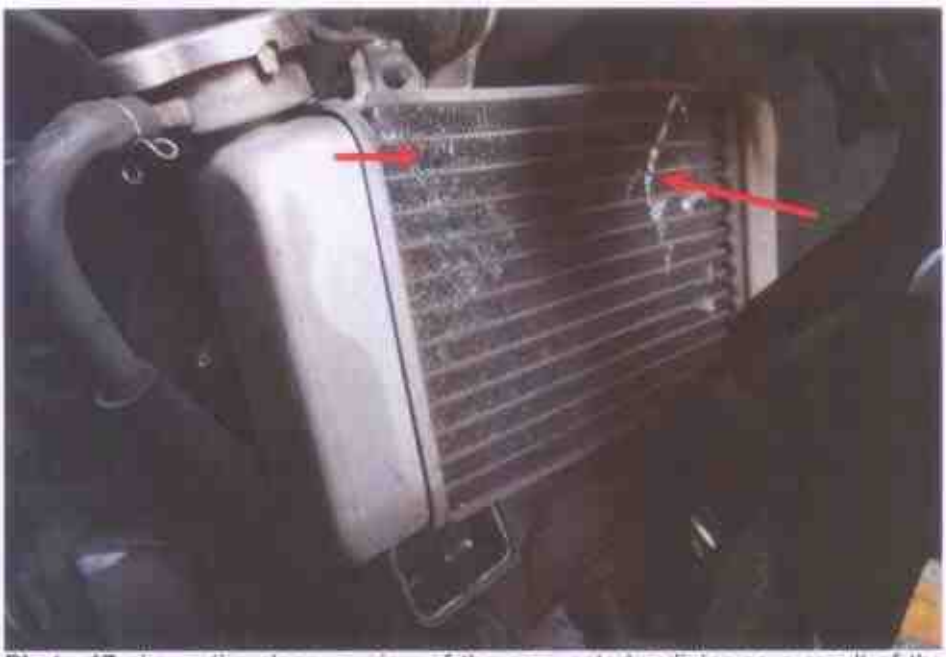

Photo 17 shows the close-up view of the corrugated radiator as a result of the accident's impact collision.

Photo 18 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 19 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

11. For this case, we were not able to conduct any test(s) on the steering system and braking system of the Motorcycle due to the damages on its handle bar, front fork & front brake disc. It was found to be damaged as a result of the accident, hence causing the whole steering system & front braking system to be in a state of immobility.

12. 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). 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. Notwithstanding that the front brake disc was damaged due to the accident, a static brake tests that was 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 gripping the hand brake lever & stepping on the rear brake foot paddle. This would indicate that there was no leakage of pressure/vacuum in the brake system also on the rear brake drum mechanical parts. Our checks on the brake fluid had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.

14. 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 handle bar, front forks & ignition system which had rendered the Motorcycle immobility for the operational tests. See photo 20 to 26 below.

Photo 20 shows the front fork (arrowed) was observed to be damaged as a result of the accident.

Photo 21 shows the handle bar (arrowed) was observed to be dislodged from the original installation as a result of the accident.

Photo 22 shows the front brake fluid reservoir (arrowed) was observed to be unaffected by the accident. It was observed to be of sufficient level & not contaminated at the time of our inspection.

Photo 23 shows the rear foot brake pedal components (arrowed) was observed to be in serviceable condition unaffected by the accident's impact collision.

Photo 24 shows the static test conducted to the rear foot brake. It was observed to be in serviceable condition unaffected by the accident's impact.

Photo 25 shows the static test conducted to the front hand brake. It was observed to be in serviceable condition unaffected by the accident's impact.

Photo 26 shows the brake pad was noted to be with sufficient frictional material at time of our inspection.

Photo 27 shows a slight bend to the brake disc at time of our inspection likely due to the accident's impact collision.

Conclusion

15. 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.

16. The conditions of the Motorcycle's tyres were observed to be in serviceable condition. The tread patterns of the tyres were 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 tyres. Its tread depth was measured & found to be around approximately 3mm each.

17. Notwithstanding that the steering system & 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.

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 damages on its steering system, ignition system & braking system (as a result of the accident), which had rendered the Motorcycle's immobility.

Rohaizal A. Rahim
Technical Investigator

Ang Bryan Tani
AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA
Senior Technical Investigator
Technical Investigation & Reconstructionist (SAE-A)