LKK 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) 6741-4108

Your Ref: TP/IP/40567/2018
Our Ref. :CI/TPD18014215/Z

25th September 2018

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

## MECHANICAL INSPECTION REPORT OF MOTORCYCLE DBC 8052

1. We refer to your request dated 02nd August 2018 to conduct a physical inspection of a motorcycle bearing registration number DBC 8052 (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 17th July 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 31st August 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 our inspection due to the unavailability of the key.

5. The Motorcycle was observed to have sustained minor damages at the frontal & left portion. The body parts that were found to have been damaged include its front left hand side fairing, its rear box bracket, left handle, scratched headlamp, left wing mirror, front mud guard and left side gear shift pedal amongst others as a result of the accident.

6. This was likely due to the consistency of the accident's case facts that the Motor Cycle (DBC 8052) rider was believed to have self-skidded. See photo 1 to 8 below.

**Photo 1** shows a close-up view of the mileage meter at time of our inspection. The mileage was recorded at 014975km.

**Photo 2** shows a general view of the front body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be confined to its left side of the Motorcycle.

**Photo 3** shows a general view of the right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be in good condition generally unaffected by the accident's impact except for a broken rear box bracket.

**Photo 4** shows a general view of the rear body of the Motorcycle at the time of our inspection. The Motorcycle was observed to be in good condition generally unaffected by the accident's impact except for a broken rear box bracket.

**Photo 5** shows a general view of the left body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages on the left portion as a result of the accident.

**Photo 6** shows a closer view of the front left handle bar of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained with relatively minor damages due to the accident collision. (Circled)


**Photo 7** shows a closer view of the front left portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained with relatively minor damages due to the accident collision. (Circled)

**Photo 8** shows a closer view of the left foot rest & gear shift pedal of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained with relatively minor damages due to the accident collision. (Circled)

## Tyres and Wheel Rims

7. The condition of the Motorcycle's 2 tyres was observed to be in serviceable condition. 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 2 tyres were both 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:-



Maxxis 70/90 - 17 (3mm) Maxxis 60/90 - 17 (3mm)

8. The rear tyre was wrapped around alloy wheel rims that were found to be without any significant damage. See photo 9 & 10 below

**Photo 9** 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 10** shows the front tyre of the Motorcycle. 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.

## 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 11 – 14 below.

**Photo 11** shows no sign(s) or indication(s) of fluid leak observed around the underside of the engine area of the Motorcycle.

**Photo 12** shows no sign(s) or indication(s) of fluid leakage stain observed around the engine area of the Motorcycle.

**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.

**Photo 14** 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 serviceable condition. Its front fork was found to be intact and undamaged not affected by the accident's impact.

12. The brake system of the Motorcycle was of a fully-hydraulic type, where hydraulic (brake fluid) pressure controls the brake for the front & 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 on the Motorcycle front & rear brakes had appeared to indicate that the braking system of the Motorcycle was in serviceable condition. The Motorcycle's braking system like the brake discs, brake callipers, brake lever, brake pads, brake foot pedal and brake hoses revealed all to be intact and without damage. There was some resistance felt (spongy like feel) upon pressing the brake lever. This would indicate that there was 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.

## Operational Test

14. For this case, we were not able to carry out any operational tests to the steering system and braking system of the Motorcycle due to the unavailability of the motorcycle key which hinder the operational tests. However, we were able to push the motorcycle manually forward and backward, simulating movement of the Motorcycle, for the operational tests. Both brakes were engaged simultaneously while conducting the manual movements and it was observed to be in serviceable condition.

    In general, the observations gathered during the static brake test & manual movement test had indicated that the steering system & braking system of the Motorcycle was in serviceable condition. See photo 15 - 20 below.

**Photo 15** shows our checks on the brake fluid (front) reservoir had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.

**Photo 16** shows our checks on the brake fluid (rear) reservoir had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.

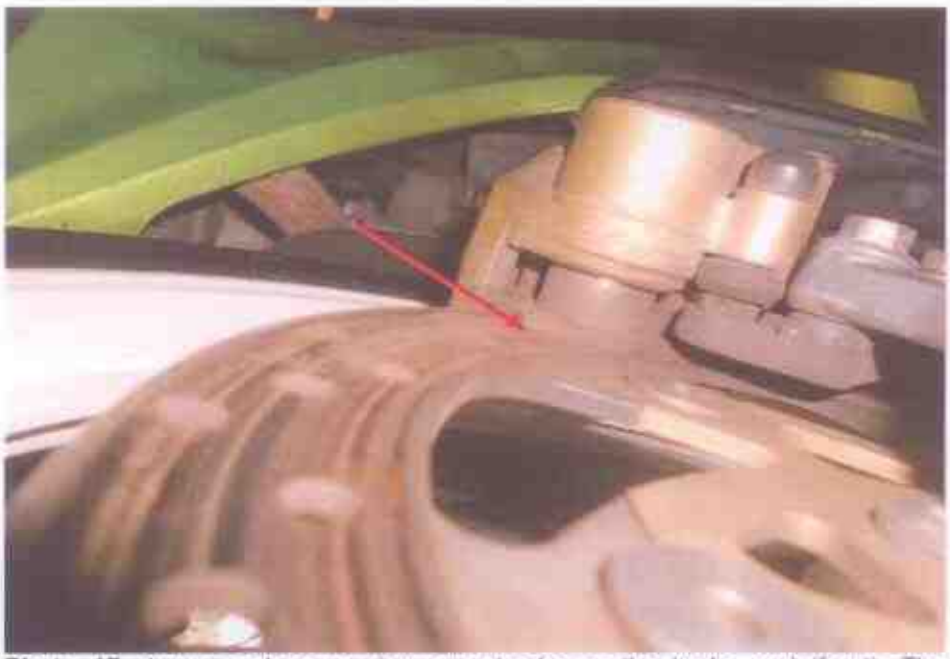

**Photo 17** shows a close-up view our checks on the brake pad (front). The frictional material was observed to be in a sufficient level for operational purposes.

**Photo 18** shows a close-up view our checks on the brake pad (rear). The frictional material was observed to be in a sufficient level for operational purposes.

**Photo 19** shows testing of the braking of the front brake in progress. There was some resistance felt (spongy like feel) upon pressing the brake lever.

**Photo 20** shows testing of the braking of the rear brake in progress. There was some resistance felt (spongy like feel) upon stepping on the brake pedal.

## Conclusion

15. 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.

16. The tyres of the Motorcycle were found to be in a 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 tyre. It was sufficiently inflated for vehicular operation with remaining tread depth of approximately 3 mm.

17. Our findings were based solely on a static test, visual inspection and manual test of the Motorcycle simulating its movement. No operational test(s) could be carried out to the Motorcycle due the unavailability of the key, 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)*