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) 67414108

Your Ref: TP/IP/69903/2018
Our Ref: CI/TPD19004301/P

24th April 2019

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBE 8770H

1. We refer to your request dated 20th February 2019 to conduct a physical inspection of a motorcycle bearing registration number FBE 8770H (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 20th December 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 5th 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 was 84,787km recorded at time of our inspection.

5. The Motorcycle was observed to have sustained minor damages at the frontal portion. The body parts that were found to have been damaged include its front number plate, front cowling, brake lever, and exhaust muffler. See Photo 1- 6.

Photo 1 shows a general view of the mileage 84,787KM at the time of our inspection.

Photo 2 shows the rear of the number plate. The rear of the Motor Cycle was observed to not have sustained any damage at the time of inspection.

Photo 3 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.

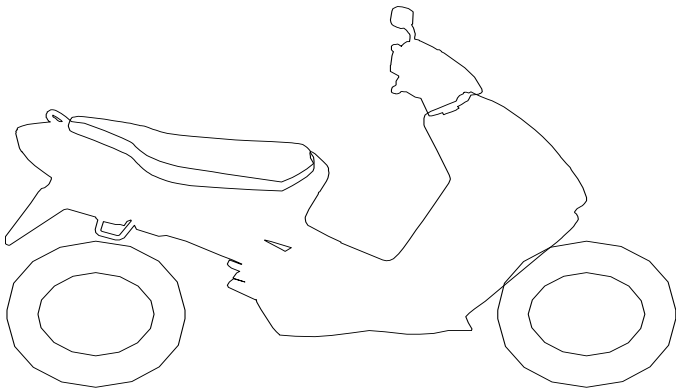
Photo 4 shows a close up view of the front body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection. The damages were observed to be confined to its number plate and brake lever of the Motorcycle.

Photo 5 shows a general view of the right side body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have not sustained any major damages at time of inspection.

Photo 6 shows a close up view of the exhaust muffler of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained relatively minor damages at time of inspection.

Tyres and Wheel Rims

6. 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 Volans
70/ 90 - 17 (1.6mm)

Maxxis Volans
70/90 - 17 (3.5mm)

8. The rear & front tyre was wrapped around alloy wheel rims that were found to be without any significant damage. See photo 7 & 8 below

Photo 7 shows the front tyre of the Motorcycle. The front tyre was observed to be in serviceable condition with remaining tread depth of 3.5mm. The tyre was also observed to be sufficiently inflated for vehicular operation. See photo above.

Photo 8 shows the rear tyre of the Motorcycle. The rear tyre was observed to be in serviceable condition with remaining tread depth of 1.6mm. The tyre was also observed to be sufficiently inflated for vehicular operation. See above.

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 9 – 12 below.

Photo 9 shows no sign(s) or indication(s) of fluid leak observed around the undercarriage of the engine area of the Motorcycle.

Photo 10 shows no sign(s) or indication(s) of fluid leakage stain observed around the engine area of the Motorcycle.

Photo 11 shows no sign(s) or indication(s) of fluid leakage stain observed around the engine area of the Motorcycle.

Photo 12 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 observed & found adequately acceptable.

Steering System & Braking System

11. My checks on the various steering components of the Motorcycle 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 handle bar towards the left and right also did not produce any abnormal free play and/or resistance.

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. My 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.

14. I subsequently carried out an operational test of the Motorcycle's braking system. This was done by manually pushing the Motorcycle forward and backward, simulating the Motorcycle in motion, and thereafter engaging the front brake and rear brake of the Motorcycle. At the end of the short operational test, I did not observe any abnormal behaviour of the Motorcycle's braking system. The front wheel and rear wheel of the Motorcycle were able to stop rotating immediately upon depressing the brake lever and stepping on the brake pedal.

15. 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 13 - 19 below.

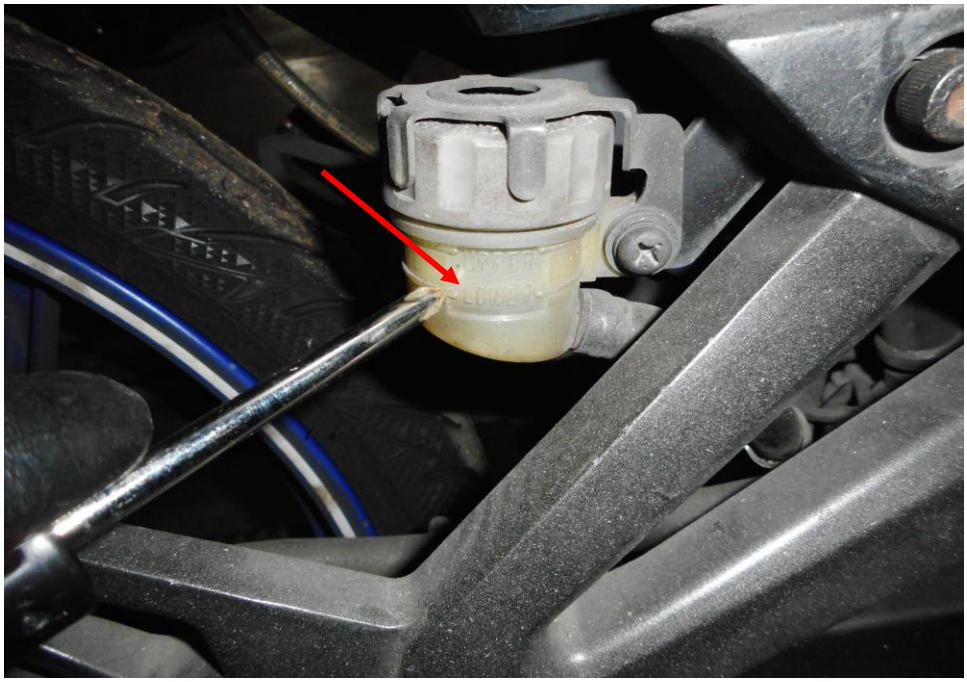


Photo 13 shows our checks on the brake fluid reservoir had also indicated that the brake fluid was of sufficient level for operational purposes, and without contamination.

Photo 14 shows our checks on the brake callipers housing (front). There was also no sign(s) or indication(s) of fluid leak observed around the Motorcycle.

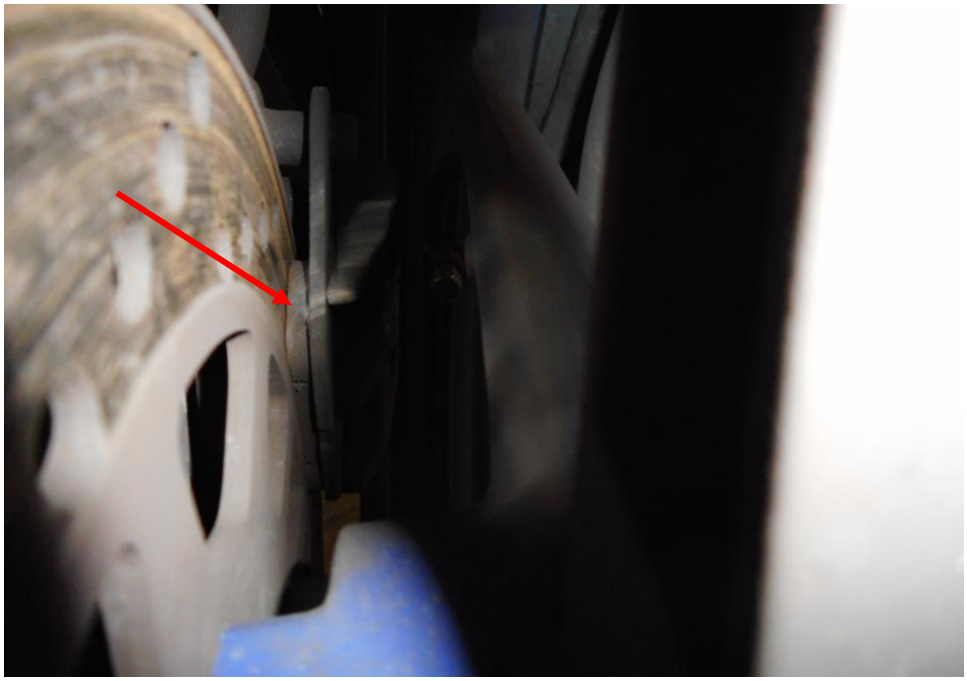


Photo 15 shows a close-up view our checks on the brake pad (front). The frictional material was observed to be in a sufficient level for operational purposes.

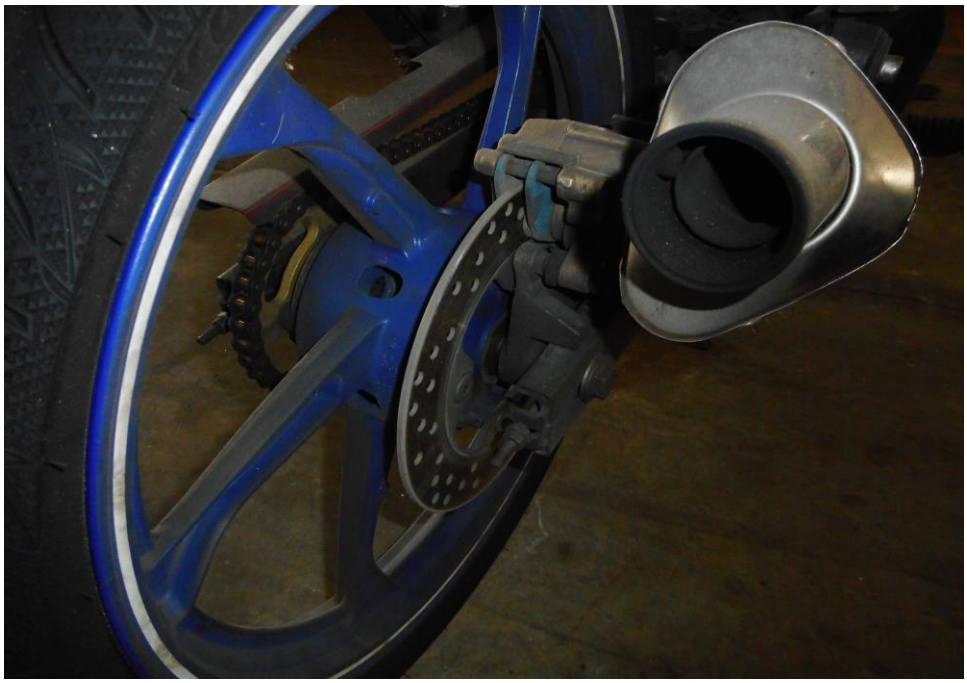


Photo 16 shows a general of the brake calliper (rear) no leakage or fluids is present around it, and without contamination.

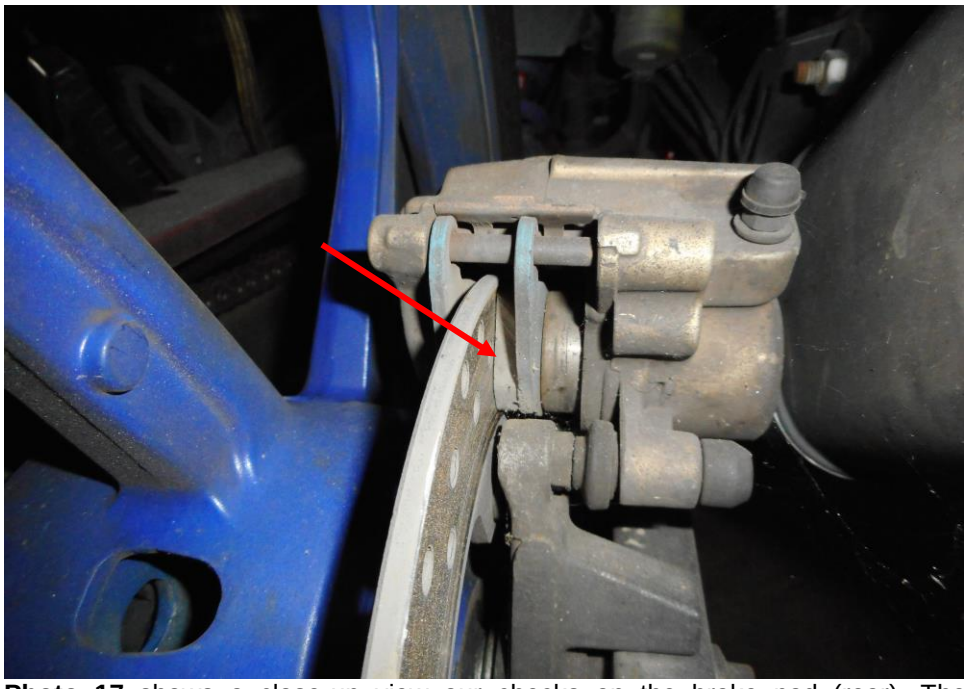


Photo 17 shows a close-up view our checks on the brake pad (rear). The frictional material was observed to be in a sufficient level for operational purposes.

Photo 18 shows testing of the braking of the front brake in progress. The braking force was felt upon pressing the brake lever. The brakes are in serviceable condition.

Photo 19 shows testing of the braking of the rear brake in progress. The braking force was felt upon stepping on the brake lever. The brakes are in serviceable condition

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 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 Rear 1.6mm & Front 3.5 mm.

Sherwin Beh,
Technical Investigator

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