LKV 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/29687/2017
Our Ref :CI/TPD18011355/Z

21st August 2018

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FBM 30X

1. We refer to your request dated 27th May 2018 to conduct a physical inspection of a motorcycle bearing registration number FBM 30X (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 19th May 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 26th June 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 recorded at time of inspection was 986km.

5. The Motorcycle was observed to have sustained minor damages at the frontal right portion. The body parts that were found to have been damaged include its front right top visor, right wing mirror, pillion's foot rest, broken rider's foot rest, right crash bar, right fairing, right signal light, misaligned handle bar, missing right hand guard & bent front fork amongst others as a result of the accident.

6. This was likely to be the consistency of the accident's case fact that the Motorcyclist was riding along Bukit Timah Road towards Upper Bukit Timah Road on the right most lane of 3 lanes road when he lost control of the Motor Cycle, side swiped onto the right side metal guard rail & skidded. See photo 1 to 8 below.

Photo 1 shows the speedo-meter of the Motorcycle where the mileage recorded at 986km.

Photo 2 shows a general view of the front portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained with relatively minor impact due to the accident collision. (Circled)

Photo 3 shows a general view of the rear right body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained minor damages at the frontal right side. (Circled)

Photo 4 shows a closer view of the frontal portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to be sustained with relatively minor impact due to the accident collision. (Circled)

Photo 5 shows a closer view of the handle bar of the Motorcycle at the time of our inspection. It was observed to be misaligned from the front fork due to the accident collision. (Circled)

Photo 6 shows a closer view of the rider's foot rest on the right side of the Motorcycle at the time of our inspection. It was observed to be broken due to the accident collision. (Circled)

Photo 7 shows a closer view of the pillion's foot rest on the right side of the Motorcycle at the time of our inspection. It was observed to sustained deep scratches due to the accident collision. (Circled)

Photo 8 shows a rear view of the Motorcycle at the time of our inspection. It's was observed to be in good condition unaffected by the accident collision.

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:-

Dunlop Trailmax D610F
150/70 - 18 (7mm)

Dunlop Trailmax D610F
90/90 - 21 (7mm)

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 7mm. The tyre was also observed to be sufficiently inflated for vehicular operation.

Photo 10 shows the front tyre of the Motorcycle. The pattern of the tread was clearly visible with remaining tread depth of approximately 7mm. 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. However, upon cranking of the Motor Cycle, we had observed there was sign(s) or indication(s) of fluid leakage from under the engine area of the Motorcycle. A greenish fluid believes to be the engine coolant gushed out from the undercarriage compartment likely due to the accident's impact collision.

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 top side of the engine area of the Motorcycle.

Photo 12 shows sign(s) or indication(s) of fluid leakage was observed around the underside of the engine area of the Motorcycle. The fluid was believe to be engine coolant gushed out from the underside of the engine compartment upon cranking of the Motor Cycle.

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 not serviceable condition. Its front fork was found to be slightly bent likely due to the accident's impact collision.

12. 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 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 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.

14. For this case, we were unable to carry out operational test of the Motorcycle's braking system. This was due to the misalignment of the steering system & broken right foot rest where the rider utilizes as support for applying the rear brake as a result of the accident's collision impact.

    In general, our observations gathered only during the static brake test which indicated that the braking system of the Motorcycle was in serviceable condition. See photo 15 - 22 below.

Photo 15 shows the steering system was observed to be slightly bent likely due to the accident's impact.

Photo 16 shows the front fork was observed to be slightly bent likely due to the accident's impact.

Photo 17 shows the brake fluid reservoir for front brake observed to be sufficient at time of our inspection.

Photo 18 shows the brake fluid reservoir for rear brake observed to be sufficient at time of our inspection.

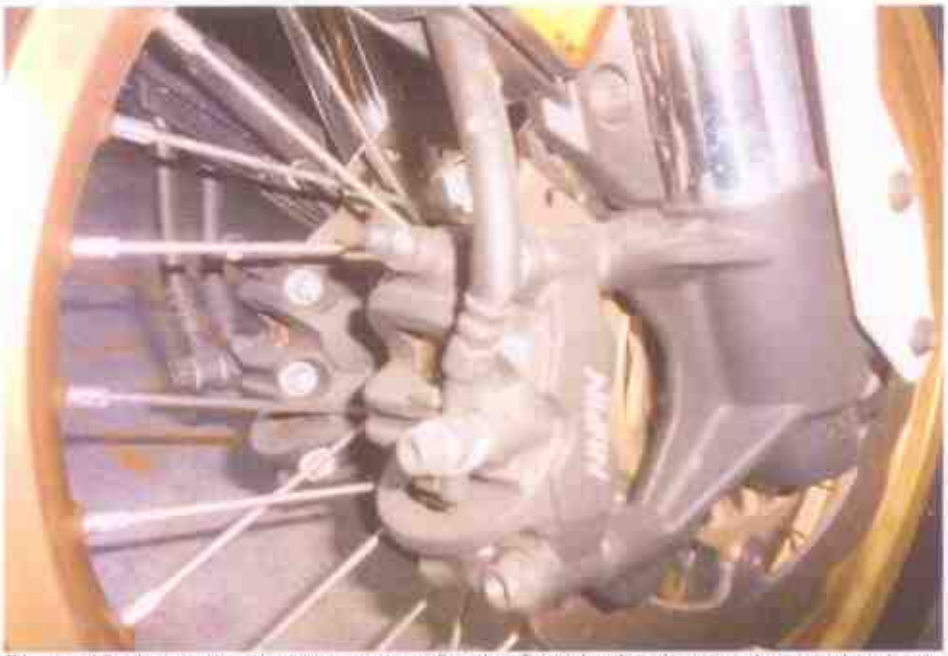

Photo 19 shows the braking system for the front brake. It was observed to be in serviceable condition at time of our inspection. The braking components were found to be intact unaffected by the accident's impact collision.

Photo 20 shows the braking system for the rear brake. It was observed to be in serviceable condition at time of our inspection. The braking components were found to be intact unaffected by the accident's impact collision.

Photo 21 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 22 shows testing of the braking of the front brake in progress. There was some resistance felt (spongy like feel) upon pressing the brake lever.

Conclusion

15. Basing on our physical inspection of the Motorcycle, it appears that the steering system was not in serviceable condition. Its front fork & handle bar was found to be misaligned likely due to the accident's impact collision.

16. Notwithstanding that the operational test could not be conducted due to the broken right foot rest (rear brake), our static brake test on the rear brake & front brake reveals that the braking systems 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 approximately 7mm.

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 steering system & rear brake foot rest (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)