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Our Ref : CI/TPD18010472/Z

20th March 2018

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

MECHANICAL INSPECTION REPORT OF MOTOR LORRY YP 2037B

1. We refer to your request on 07th March 2018 to conduct a physical inspection of a motor lorry bearing registration number YP 2037B (herein referred to as "**Motor Lorry**"), which was involved in a fatal road traffic accident on 11th February 2018.
2. The objective of this inspection is to determine if there was any possible mechanical failure to the Motor Lorry that may have contributed to the accident.
3. Following the request, we had carried out a physical inspection of the Motor Lorry on 20th March 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 Motor Lorry at the time of our inspection was not recorded as its engine could not be started due to a flat battery.
5. The Motor Lorry was observed to have sustained minor damage at its front lower bumper; its right headlamp; its right hand side mirror and number plate were amongst the body parts that were damaged as a result of the accident.
6. This was likely due to the consistency of the accident's case facts that the Motor Lorry was travelling straight on lane 3 of a 3 lane road along Tuas West Road towards the direction of Jalan Ahmad Ibrahim when out of a sudden, Motorcycle MCU 4806 made a right turn from the opposite direction & caused a collision. See photo 1 to 6 below.



Photo 1 shows a general view of the front portion of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained minor damage at its front lower bumper; its right headlamp; its right hand side mirror and number plate were amongst the body parts that were damaged as a result of the accident.



Photo 2 shows a general view of the front left of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained minor damage at its front lower bumper; its right headlamp; its right hand side mirror and number plate were amongst the body parts that were damaged as a result of the accident.

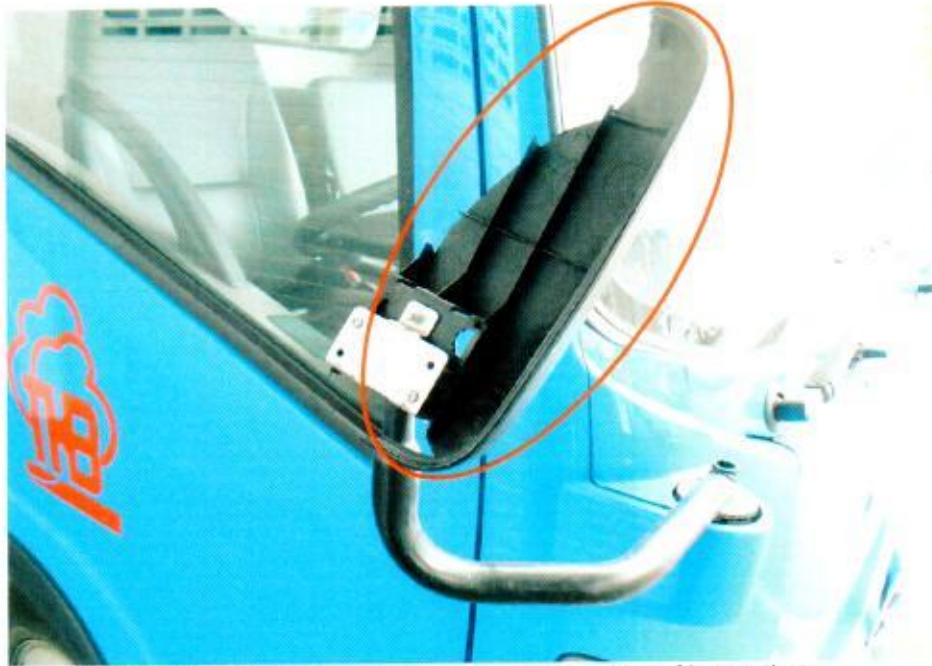


Photo 3 shows a damaged front right side mirror at time of inspection.



Photo 4 shows the right headlamp of the Motor Lorry. It was observed to have sustained damages as a result of the accidents.



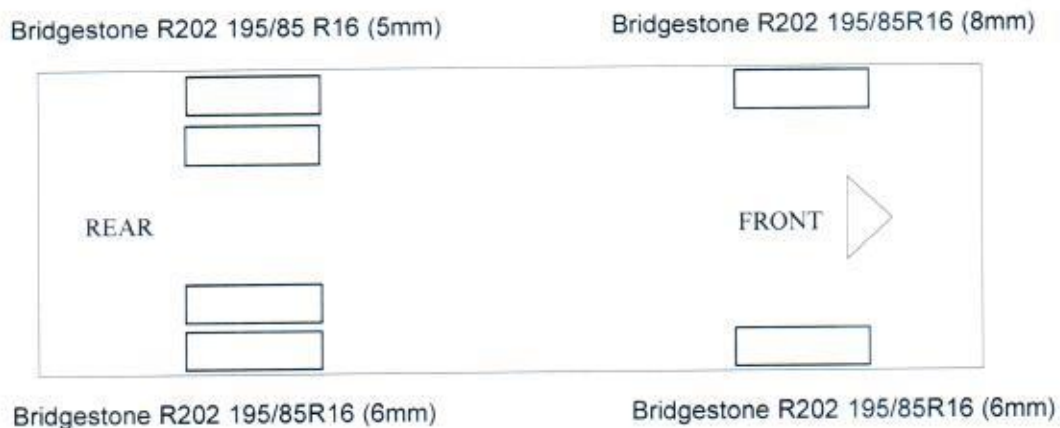
Photo 5 shows the damage sustained on the front number plate as a result of the accident.



Photo 6 shows a general view of the Motor Lorry's rear body at the time of our inspection. There was no damage found to the rear portion of the Motor Lorry.

Tyres and Wheel Rims

7. The 2 front tyres and 4 rear tyres of the Motor Lorry were observed to be in serviceable condition and sufficiently inflated for vehicular operation. We did not find any tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 6 tyres. The tyre brand, tyre size and remaining tread depth of the 6 tyres of the Motor Lorry were recorded as follows:-



8. The 6 tyres were observed to be wrapped around standard steel wheel rims that were found to be without any damages. See photo 7 – 11 below.



Photo 7 shows the remaining tread depth of the front left tyre of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 8mm.



Photo 8 shows the condition of the front left tyre of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 8mm. The tyre, which was wrapped around standard alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation.

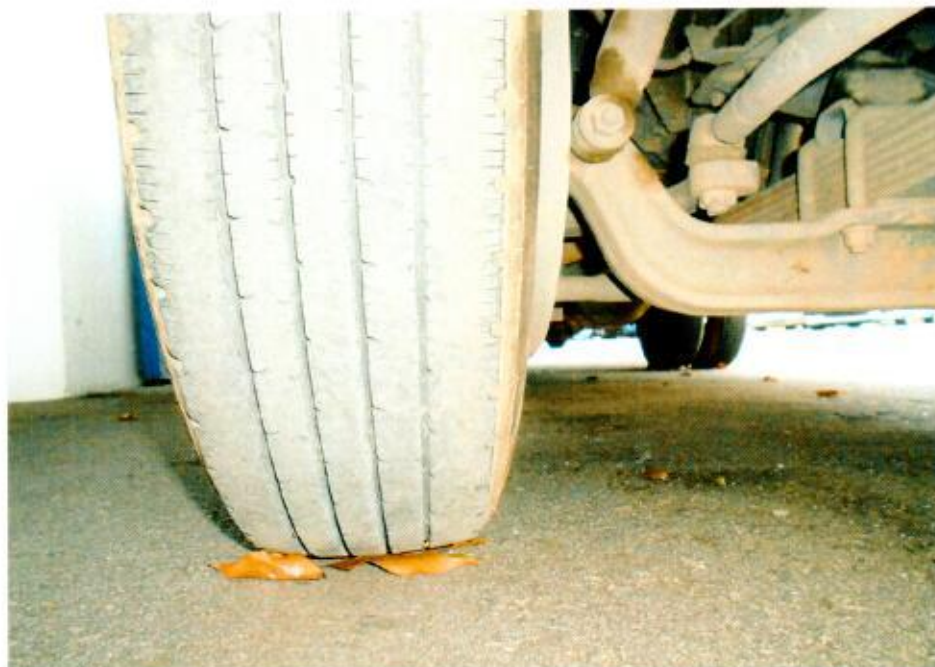


Photo 9 shows the condition of the front right tyre of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 6mm. The tyre, which was wrapped around standard alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation.



Photo 10 shows the condition of the rear left tyres of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 5mm. The tyres, which were wrapped around standard alloy wheel rim, were also observed to be sufficiently inflated for vehicular operation.



Photo 11 shows the condition of the rear right tyres of the Motor Lorry, which were observed to be in serviceable condition with remaining, tread depth of approximately 7mm.

Engine Compartment & Operating Fluids

9. Upon examination of the Motor Lorry's engine compartment, we had observed that all the parts and components inside the engine compartment to be intact and unaffected by the accident. The brake fluid, engine oil and engine coolant were all found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids.
10. Further examination of the engine compartment found that there was no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the engine compartment of the Motor Lorry.
11. Our subsequent checks on the underside of the Motor Lorry also revealed no sign of fluid stain. Visually, the various undercarriage components of the Motor Lorry were all observed to be intact and without any visible damage. See photo 12 – 15 below.



Photo 12 shows a general view of the Motor Lorry's engine compartment, which was accessed by lifting the front cabin of the Motor Lorry. The various parts and components inside the engine compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the engine.



Photo 13 shows the brake fluid reservoir of the Motor Lorry at the time of our inspection. The brake fluid was observed to be of sufficient level and without any visible contamination (arrowed).

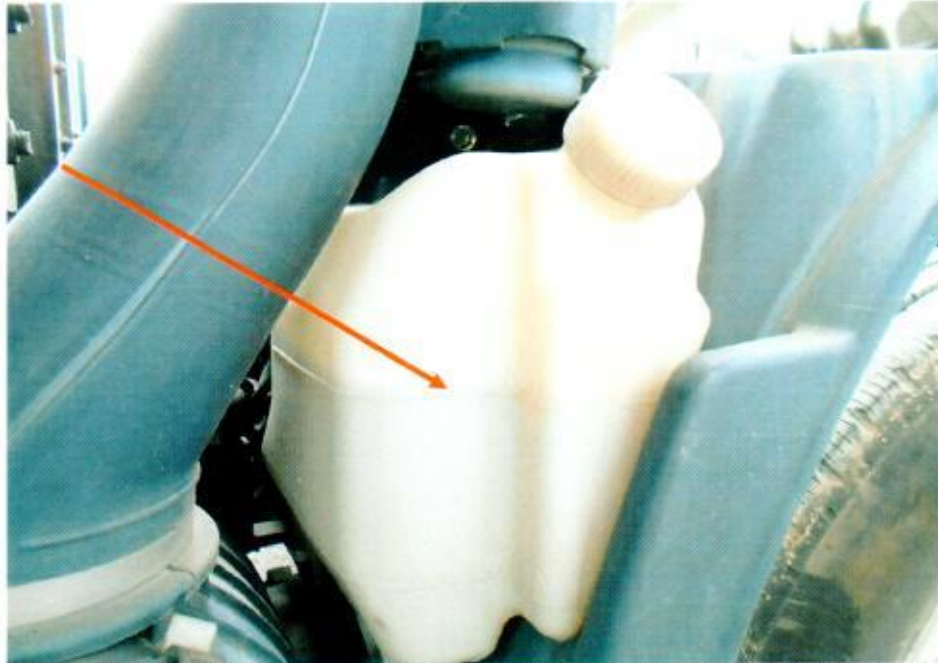


Photo 14 shows the engine coolant reservoir of the Motor Lorry at the time of our inspection. The engine coolant was observed to be of sufficient level and without any visible contamination (arrowed).



Photo 15 shows the engine dip stick of the Motor Lorry at the time of our inspection. The engine oil was observed to be of sufficient level and without any visible contamination (circled).

Steering System & Braking System

12. The mechanical components of the Motor Lorry steering system were all found to be visually intact and undamaged. The steering wheel, steering tie rods, drive shafts and ball joints of the Motor Lorry were observed to be intact and securely attached to the front left wheel and front right wheel.
13. Although the steering system could not be tested at the time of our inspection (engine unable to be started), it is likely that the steering system of the Motor Lorry was in serviceable condition at the material time of accident since its mechanical components were all found to be generally intact and securely fitted. See photo 16 & 17 below.



Photo 16 shows the various undercarriage components at the front left wheel of the Motor Lorry, in particular the steering tie rod end (arrowed). The various undercarriage components of the Motor Lorry were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.



Photo 17 shows the various undercarriage components at the front right wheel of the Motor Lorry, in particular the steering tie rod end (arrowed). The various undercarriage components of the Motor Lorry were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.

14. Static brake tests conducted on the Motor Lorry revealed no abnormality. The brake booster had responded well to the various tests conducted. There was also no abnormal movement of the brake pedal when it was depressed. In general, the static brake tests had suggested that there was no internal leakage of pressure/vacuum in the braking system of the Motor Lorry. The braking system of the Motor Lorry was likely to be in serviceable condition at the material time. This was also taking into consideration that the brake fluid was of sufficient level, and also that there was no sign(s) of brake fluid leakage along the brake hoses and brake pipes.
15. Checks on the brake shoes (brake pads) at the rear wheels of the Motor Lorry revealed that the brake shoes (brake pads) were in serviceable condition with sufficient frictional material for operational purposes. In general, our visual inspection of the mechanical components of the Motor Lorry's braking system appear to suggest that its braking system was in serviceable condition at the material time of accident. See photo 18 & 19 below.



Photo 18 shows the various undercarriage components at the rear wheels of the Motor Lorry. There was no sign(s) of brake fluid leakage along the brake hoses and brake pipes.



Photo 19 shows the brake shoes (brake pads) at the rear wheels of the Motor Lorry revealed that the brake shoes (brake pads) were in serviceable condition with sufficient frictional material for operational purposes.

Electronic Safety / Warning Indicators

16. The Motor Lorry was not fitted with any electronic safety feature(s) like Anti-Brake Lock System (ABS), Supplemental Restraint System (SRS) etc. There was hence no test carried out on the functionality of these systems.

Operational Behaviour of the Motor Lorry

17. As the engine of the Motor Lorry could not be started, we were hence not able to carry out any operational test(s) to primarily determine whether there was any operational abnormality to its engine system, transmission system, steering system and braking system.

Conclusion

18. From our physical inspection of the Motor Lorry, it appears that its engine system, steering system, braking system and transmission system were all in serviceable condition. We did not find any evidence(s) to suggest that there was possible mechanical failure to the Motor Lorry that may have caused and/or contributed to the accident. This is also taking into consideration that the operational test of the Motor Lorry, which we had conducted, did not produce any sign(s) or symptom(s) to suggest that there was any abnormality to its various operating systems.
19. The 2 front tyres and 4 rear tyres fitted on the Motor Lorry were also found to be in serviceable condition. We did not find any tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 6 tyres. The 6 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 5mm to 8mm each.

20. Our findings were based solely on a static and visual inspection of the Motor Lorry. No operational test could be carried out to the Motor Lorry due to it was unable to be started at time of inspection.



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