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Your Ref: TP/IP/64127/2018
Our Ref : CI/TPD18022211/P

26th April 2019

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

MECHANICAL INSPECTION REPORT OF MOTOR LORRY YM 5867T

1. I refer to your request on 28 November 2018 to conduct a physical inspection of a motor lorry bearing registration number YM 5867T (herein referred to as "**Motor Lorry**"), which was involved in a fatal road traffic accident.

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, I had carried out a physical inspection of the Motor Lorry on 06th February 2019 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. I now set out below my observations and comments with respect to this inspection.

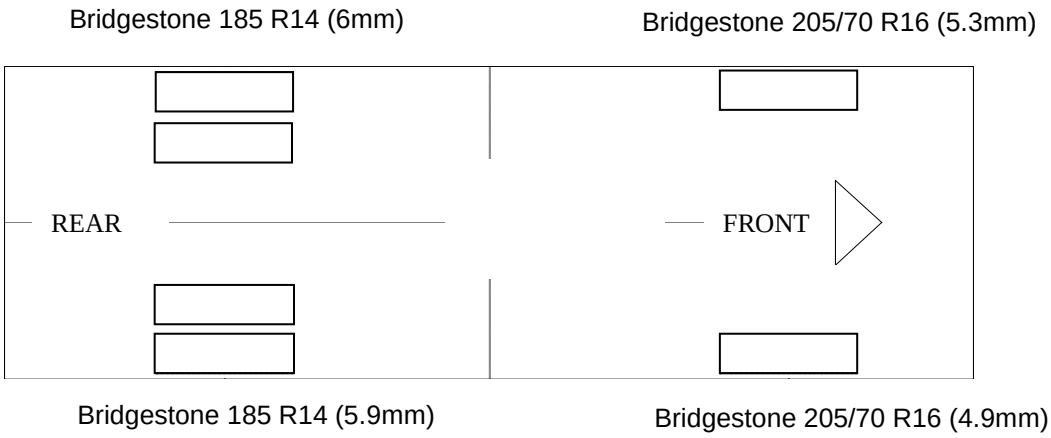
General Condition

4. The mileage of the Motor Lorry was not able to be recorded due to a broken part of a key stuck in the ignition system (Unable to start) at the time of my inspection.

5. The Motor Lorry did not appear to have sustained any significant damage at the time of my inspection.

Tyres and Wheel Rims

6. 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. I 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:-



7. The 6 tyres were observed to be wrapped around standard alloy wheel rims that were found to be without any damage. See photo 1 – 10 below.

Photo 1 shows a general view of the front left body of the Motor Lorry at the time of my inspection. The Motor Lorry was observed to be in good general condition.

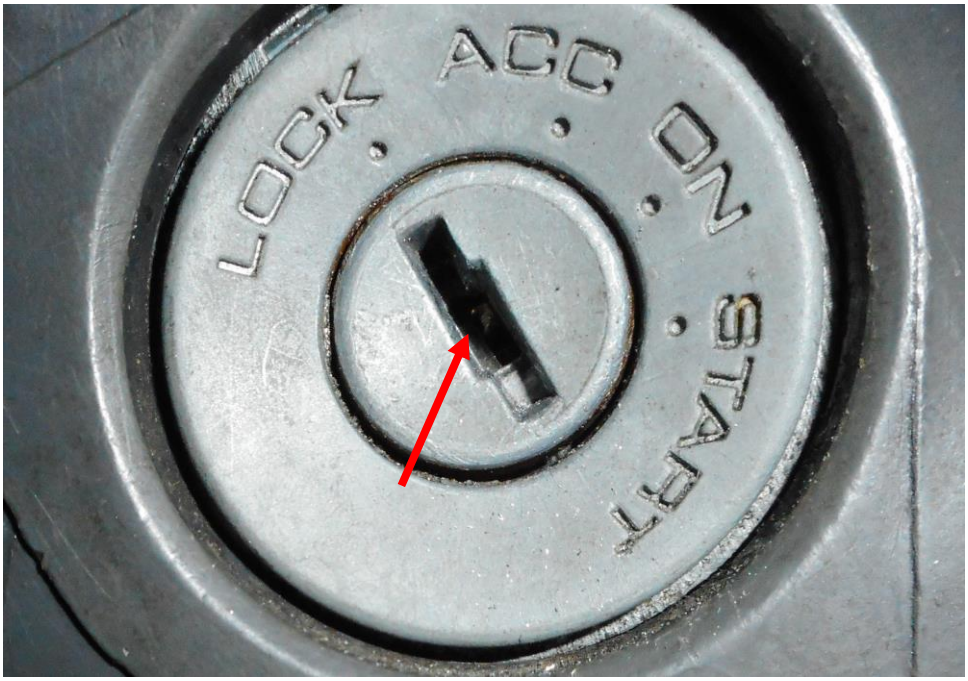


Photo 2 shows a general view of the ignition part of the Motor Lorry at the time of my inspection. The broken key is stuck in the ignition rendering the Motor lorry unable to be started.

Photo 3 shows a general view of the instrument cluster of the Motor Lorry at the time of my inspection. The mileage of the Motor Lorry was not recorded due to the Motor lorry (unable) to be started.

Photo 4 shows a general view of the front right body of the Motor Lorry at the time of my inspection. The Motor Lorry was observed to be in good general condition.

Photo 5 shows a general view of the front right body of the Motor Lorry at the time of my inspection. The Motor Lorry was observed to be in good general condition.

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

Photo 7 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 5.3mm. The tyre, which was wrapped around standard alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 6 tyres that were fitted on the Motor Lorry.

Photo 8 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 4.9mm. 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 rear left tyres of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 6mm. The tyres, which were wrapped around standard alloy wheel rim, were also observed to be sufficiently inflated for vehicular operation. There was also no damage found on all 6 alloy wheel rims of the Motor Lorry.

Photo 10 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 5.9mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 6 tyres that were fitted on the Motor Lorry.

Engine Compartment & Operating Fluids

8. Upon examination of the Motor Lorry's engine compartment, I had observed all the parts and components inside the engine compartment to be intact and unaffected by the accident. The brake fluid, engine oil, power steering fluid and engine coolant were all found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids.

9. Further examination of the engine compartment revealed, there was no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the engine compartment of the Motor Lorry.

10. My subsequent checks on the underside of the Motor Lorry also revealed no fluid stain. Visually, the various undercarriage components of the Motor Lorry were all observed to be intact and without any visible damage. See photo 11 – 16 below.

Photo 11 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 compartment (photograph shows the engine compartment as viewed from the right front side of the Motor Lorry).

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 compartment (photograph shows the engine compartment as viewed from the front left side of the Motor Lorry).

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

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

Photo 15 shows the power steering fluid reservoir of the Motor Lorry at the time of my inspection. The power steering fluid was observed to be of sufficient level and without any visible contamination.

Photo 16 shows the engine dip stick of the Motor Lorry at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

Steering System & Braking System

11. 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.

12. Static test on the steering system of the Motor Lorry was not able to be tested due to the broken key stuck in the ignition rendering it unable to be turned. My visual examination of the various steering components which had included the rack and pinion, tie rods, tie rod ends and ball joints had revealed that these components were all generally in good condition. See photo 17 - 20 below.

Photo 17 shows the brake pipe (arrowed) at the rear right wheel of the Motor Lorry. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Lorry. My static tests of the Motor Lorry's braking system, along with my visual examination of the various mechanical components in the braking system, had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Lorry was likely to be in serviceable condition at the material time of accident.

Photo 18 shows the brake pipe (arrowed) at the rear left wheel of the Motor Lorry. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Lorry. My static tests of the Motor Lorry's braking system, along with my visual examination of the various mechanical components in the braking system, had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Lorry was likely to be in serviceable condition at the material time of accident.

Photo 19 shows the various undercarriage components at the front right wheel of the Motor Lorry, in particular the steering tie rod end (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Lorry was likely to be in serviceable condition at the material time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Photo 20 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.

Electronic Safety / Warning Indicators

13. Due to the broken key stuck in the ignition system, rendering it unable to be turned, hence no test could be carried out on the functionality of these Electronic safety feature(s) like Anti-Brake Lock System (ABS), Supplemental Restraint System (SRS) etc.

Operational Behaviour of the Motor Lorry

14. No operation test was conducted due to the Motor Lorry due to the broken key stuck in the ignition system, rendering it unable to be turned. (unable to operate)

Conclusion

15. Although no operational test could be carried out, my physical inspection to the Motor Lorry appears to suggest its engine system, steering system, braking system and transmission system were all in serviceable condition. However static test conducted revealed that the braking system was likely to be in serviceable condition. I 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.

16. The 2 front tyres and 4 rear tyres fitted on the Motor Lorry were also found to be in serviceable condition. I 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 4.9mm – 6mm.

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