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Your Ref: TP/IP/09681/2020 4th August 2020
Our Ref : CI/TPD20004857/P

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

MECHANICAL INSPECTION REPORT OF MOTOR TRAILER BLB 5990

1. I refer to your request on 2nd April 2020 to conduct a physical inspection of a Motor Trailer bearing registration number BLB 5990 (herein referred to as "**Motor Trailer**"), which was involved in a fatal road traffic accident on 19th February 2020.

2. The objective of this inspection is to determine if there was any possible mechanical failure to the Motor Trailer that may have contributed to the accident.

3. Following the request, I had carried out a physical inspection of the Motor Trailer on 3rd August 2020 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 Trailer at the time of my inspection was 287,118km.

5. There was no visible damage observed on Motor Trailer at the time of my inspection.

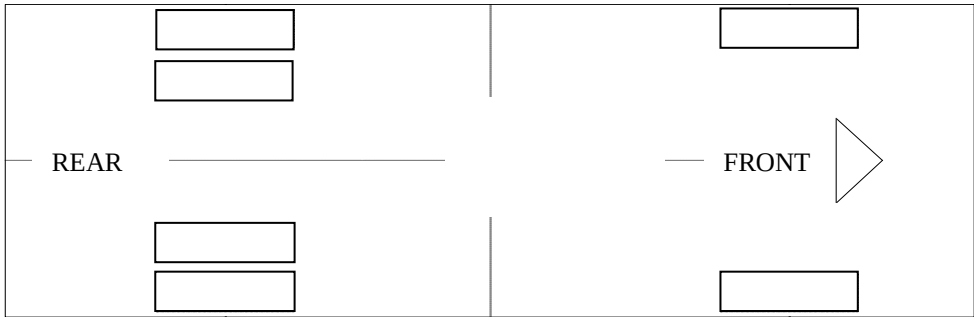
6. The Motor Trailer's engine was unable to be started up despite multiple attempts in jumpstarting it.

Tyres and Wheel Rims

7. The 2 front tyres and 4 rear tyres of the Motor Trailer and 12 tyres of the trailer 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 of the Motor Trailer and the 12 tyres of the trailer. The tyre brand, tyre size and remaining tread depth of the 6 tyres of the Motor Trailer and 12 tyres of the trailer were recorded as follows:-

Motor Trailer

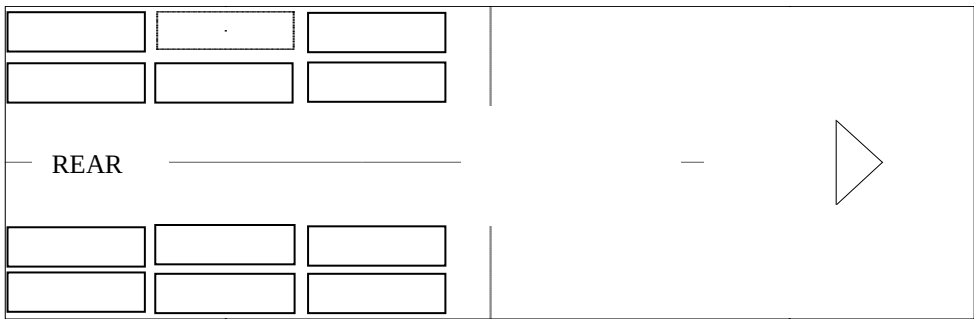
LongMarch 295/80 R22.5 (14.3mm) LongMarch 295/80 R22.5 (7.1mm)



LongMarch 295/80 R22.5 (8.5mm) LongMarch 295/80 R22.5 (9.6mm)

Trailer

LongMarch 295/80 R22.5 (9.3mm)



LongMarch 295/80 R22.5 (9.5mm)

8. The 6 tyres of the Motor Trailer and 12 tyres of the Trailer were observed to be wrapped around standard steel wheel rims that were found to be without any damage. See photo 1 – 15 below.

Photo 1 shows a general view of the instrument cluster of the Motor Trailer at the time of my inspection. The mileage of the Motor Trailer was 287,118km

Photo 2 shows a general view of the front body of the Motor Trailer at the time of my inspection. The Motor Trailer was observed to be intact and unaffected by the accident.

Photo 3 shows a general view of the front right body of the Motor Trailer at the time of my inspection. The Motor Trailer was observed to be intact and unaffected by the accident.

Photo 4 shows a general view of the front left body of the Motor Trailer at the time of my inspection. The Motor Trailer was observed to be intact and unaffected by the accident.

Photo 5 shows a general view of the Motor Trailer's rear body at the time of my inspection. The Motor Trailer was observed to be intact and unaffected by the accident.

Photo 6 shows a general view of the front body of the trailer at the time of my inspection. The Motor Trailer was observed to be intact and unaffected by the accident.

Photo 7 shows a general view of the trailer's left body at the time of my inspection. The Motor Trailer was observed to be intact and unaffected by the accident.

Photo 8 shows a general view of the trailer's right body at the time of my inspection. The Motor Trailer was observed to be intact and unaffected by the accident.

Photo 9 shows a general view of the trailer's rear body at the time of my inspection. The Motor Trailer was observed to be intact.

Photo 10 shows the condition of the front right tyre of the Motor Trailer, which was observed to be in serviceable condition with remaining tread depth of approximately 9.6mm. The tyre, which was wrapped around standard steel 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 Trailer.

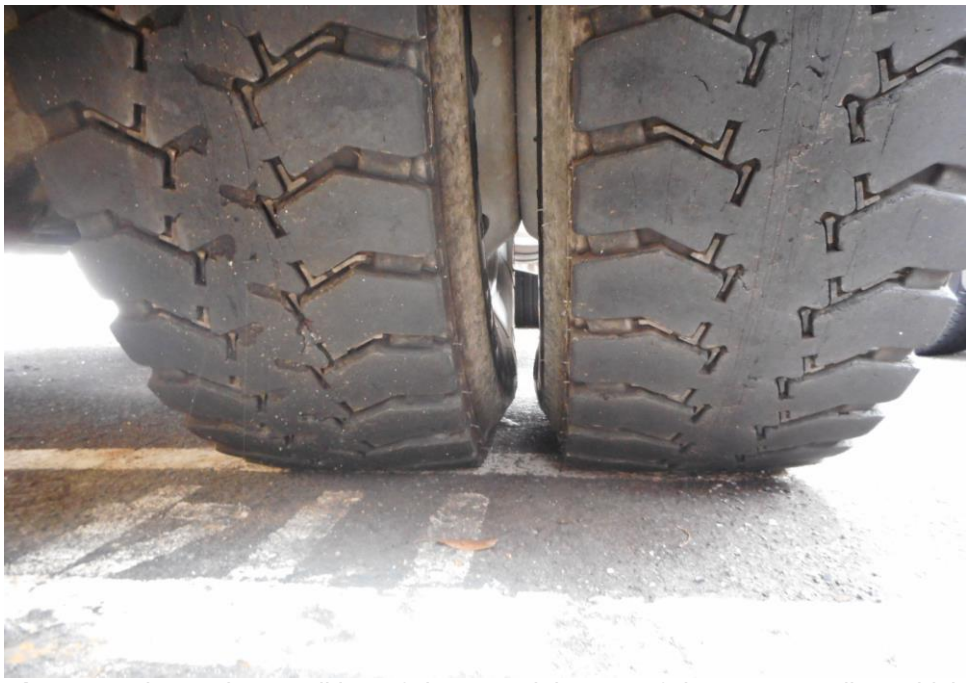


Photo 11 shows the condition of the rear right tyre of the Motor Trailer, which was observed to be in serviceable condition with remaining tread depth of approximately 8.5mm. The tyre, which was wrapped around standard steel wheel rim, was also observed to be sufficiently inflated for vehicular operation.

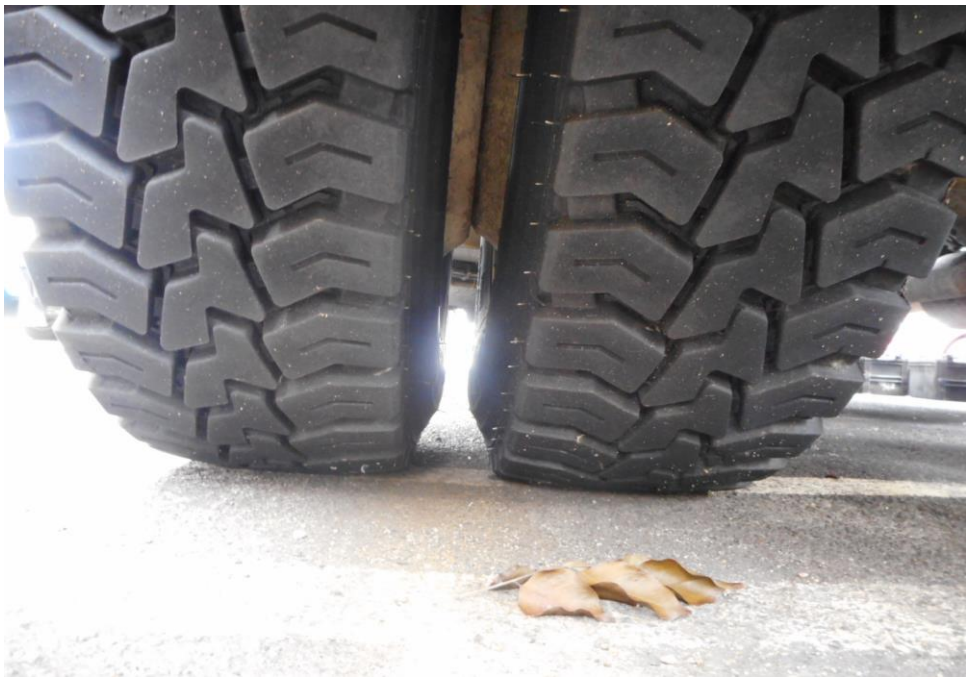


Photo 12 shows the condition of the rear left tyres of the Motor Trailer, which was observed to be in serviceable condition with remaining tread depth of approximately 14.3mm. The tyres, which were wrapped around standard steel wheel rim, were also observed to be sufficiently inflated for vehicular operation. There was also no damage found on all 6 steel wheel rims of the Motor Trailer.

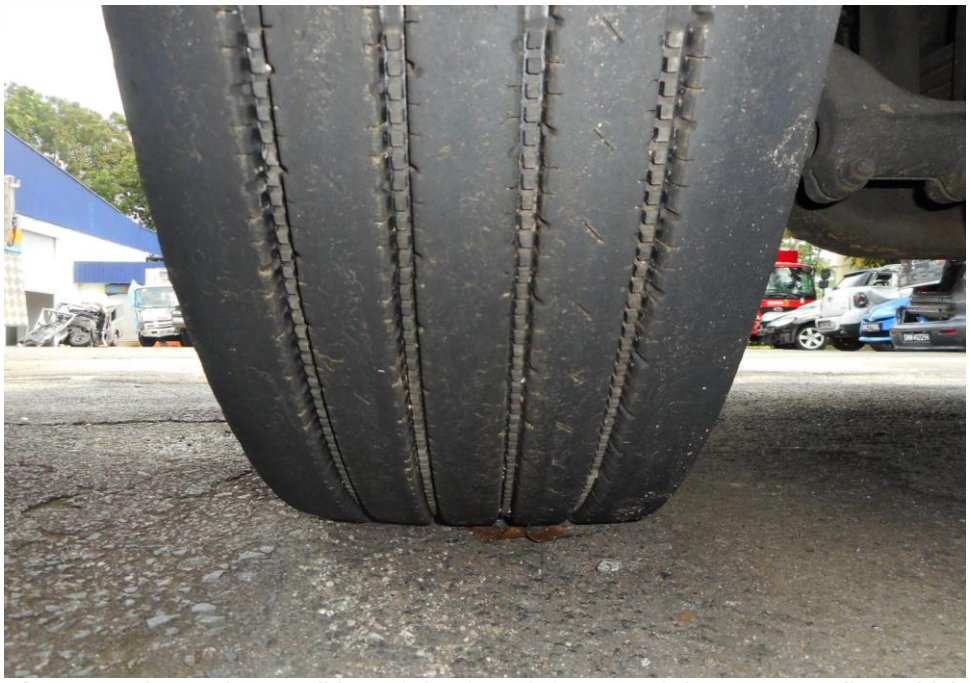


Photo 13 shows the condition of the front left tyres of the Motor Trailer, which were observed to be in serviceable condition with remaining tread depth of approximately 7.1mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 6 tyres that were fitted on the Motor Trailer.

Photo 14 shows the condition of the right tyres of the trailer, which was observed to be in serviceable condition with remaining, tread depth of approximately 9.5mm. The tyre, which was wrapped around standard steel wheel rim, was also observed to be sufficiently inflated for vehicular operation.

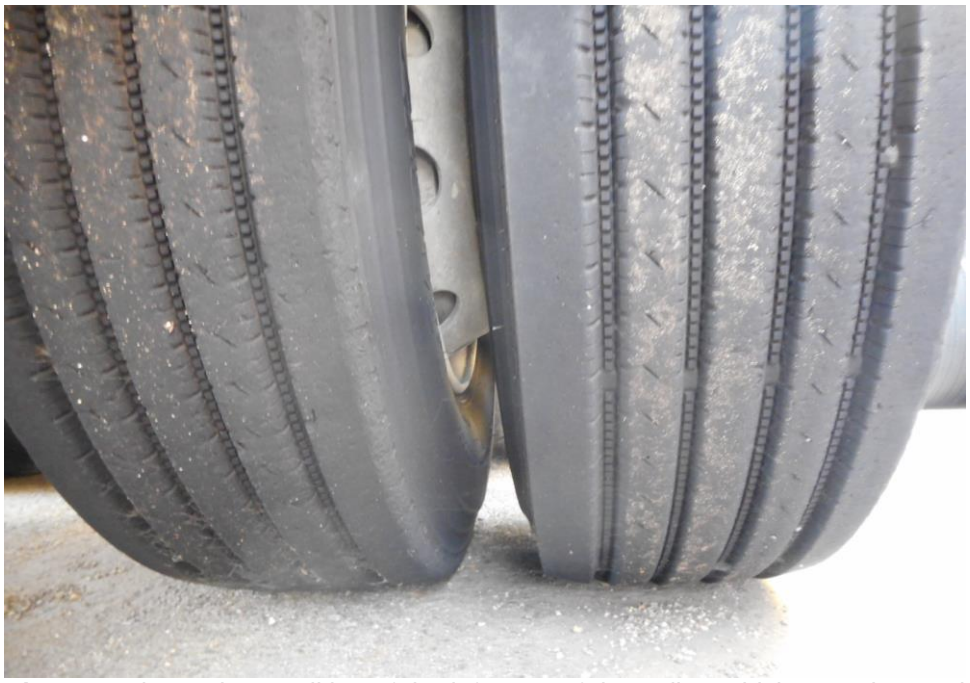


Photo 15 shows the condition of the left tyres of the trailer, which was observed to be in serviceable condition with remaining tread depth of approximately 9.3mm. The tyres, which were wrapped around standard steel wheel rim, were also observed to be sufficiently inflated for vehicular operation. There was also no damage found on all 6 steel wheel rims of the Motor Trailer.

Engine Compartment & Operating Fluids

9. Upon examination of the Motor Trailer's engine compartment, I had observed all the parts and components inside the engine compartment to be intact and unaffected by the accident. The 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.

10. However the air brake cylinder of Motor Trailer was not observed as it requires the engine to be started and the engine was unable to be started up despite multiple attempts on jumpstarting it.

11. 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 Trailer.

12. My subsequent checks on the underside of the Motor Trailer also revealed no fluid stain. Visually, the various undercarriage components of the Motor Trailer were all observed to be intact and without any visible damage. See photo 16 – 21 below.

Photo 16 shows a general view of the Motor Trailer's engine compartment, which was accessed by lifting the front cabin of the Motor Trailer. 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

Photo 17 shows the driver attempting to jumpstart up the Motor Trailer at the time of my inspection, however the engine was not able to be started up despite multiple attempts.

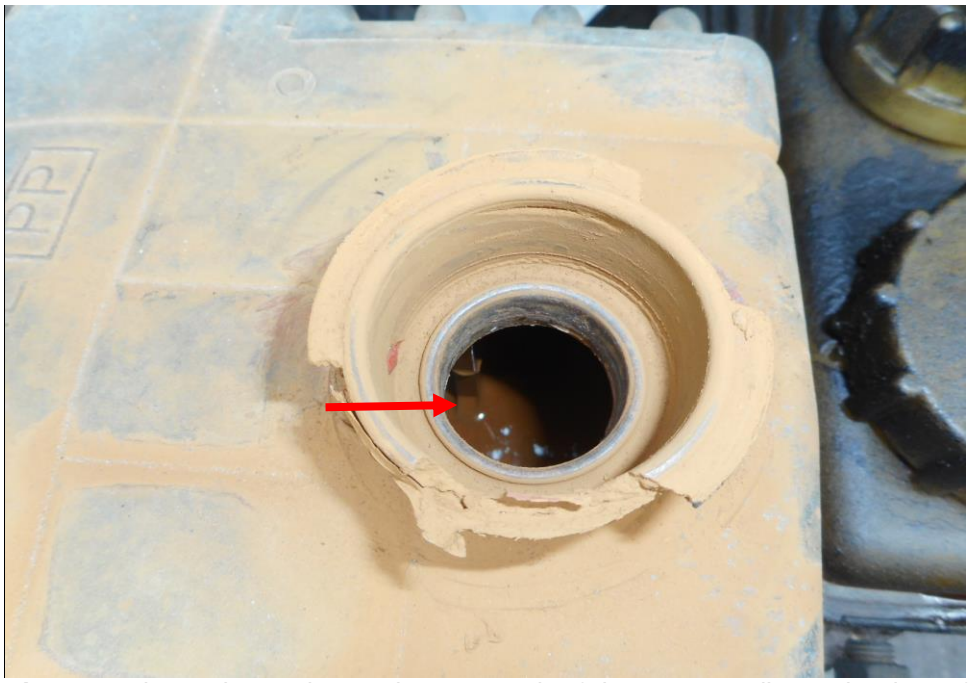


Photo 18 shows the engine coolant reservoir of the Motor Trailer at the time of my inspection. The engine coolant was observed to be of sufficient level (arrowed) and without any visible contamination.

Photo 19 shows the power steering fluid reservoir of the Motor Trailer at the time of my inspection. The power steering fluid was observed to be of sufficient level and without any visible contamination.

Photo 20 shows the engine oil dip stick of the Motor Trailer at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

Photo 21 shows the undercarriage of the Motor Trailer, at the area where the engine housing located. I did not find any sign(s) or indication(s) of fluid leak, however old fluid stain(s) was observed on the underside of the Motor Trailer.

Steering System & Braking System

13. Static brake and steering tests was unable to be conducted on the Motor Trailer as this components requires the engine to be started. However, my visual examination of the braking and steering components, there was no sign(s) of air leakage along the brake hoses, brake pipes, air cylinders and 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 22 - 29 below.

Photo 22 shows the brake pipe (arrowed) at the rear right wheel of the Motor Trailer. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Trailer. My visual examination of the various mechanical components in the braking system, had indicated that there was no internal leakage of pressure/vacuum and there components were generally in good condition.

Photo 23 shows the brake pipe (arrowed) at the rear left wheel of the Motor Trailer. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Trailer. My static tests of the Motor Trailer'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 and there components were generally in good condition.

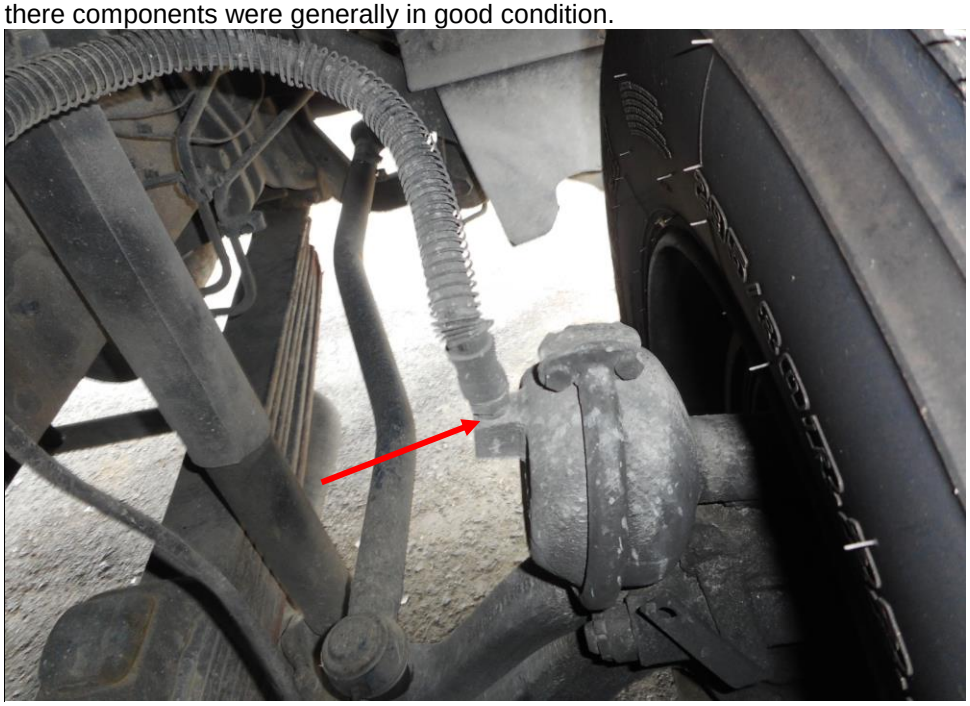


Photo 24 shows the brake pipe (arrowed) at the front right wheel of the Motor Trailer. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Trailer. My static tests of the Motor Trailer's braking system, along with my visual examination of the various mechanical components in the braking system, had indicated that there was no internal leakage of pressure/vacuum and there components were generally in good condition.

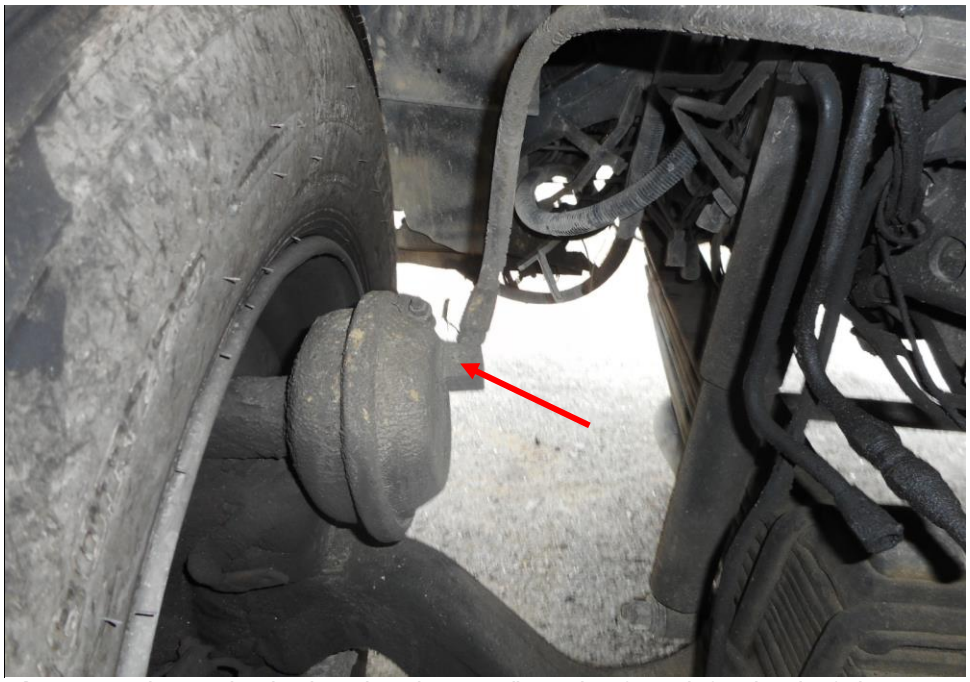


Photo 25 shows the brake pipe (arrowed) at the front left wheel of the Motor Trailer. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Trailer. My visual examination of the various mechanical components in the braking system had indicated that there was no internal leakage of pressure/vacuum and there components were generally in good condition.

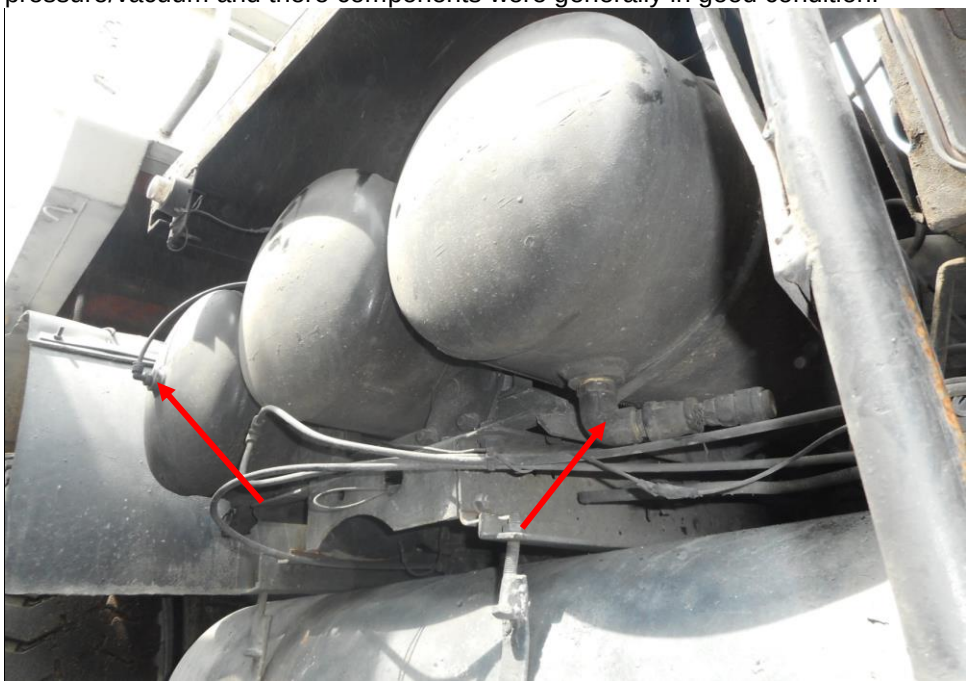


Photo 26 shows the air brake cylinders (arrowed) at the undercarriage of the Motor Trailer. I did not observe any leakage of air brake fluid at the time of my inspection of the Motor Trailer. My visual examination of the various mechanical components in the braking system had indicated that there was no internal leakage of pressure/vacuum and there components were generally in good condition.

Photo 27 shows the various undercarriage components at the front right wheel of the Motor Trailer, 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 Trailer 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 28 shows the various undercarriage components at the front left wheel of the Motor Trailer, in particular the steering tie rod end (arrowed). The various undercarriage components of the Motor Trailer 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.

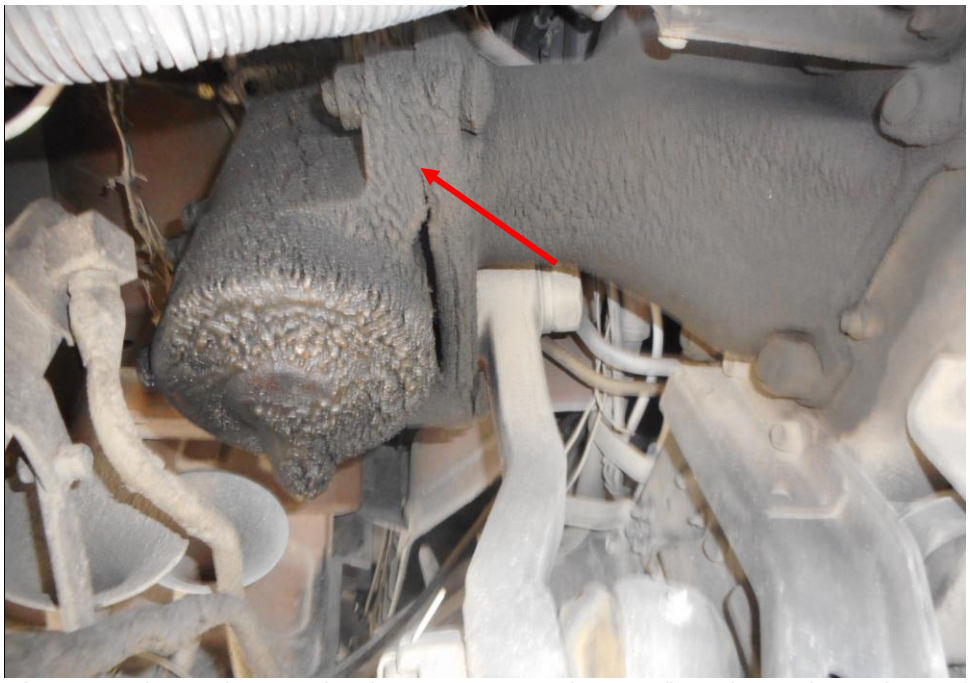


Photo 29 shows the steering box component (arrowed) at the undercarriage of the Motor Trailer was found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Electronic Safety / Warning Indicators

14. The Motor Trailer 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 Trailer

15. As the engine of the Motor Trailer could not be started, I was 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

16. For this particular case, the time of my inspection of the Motor Trailer, its steering system and braking system could not be tested as the Motor Trailer's engine could not be started. However basing on my observations, it would appear that the steering system and braking system of the Motor Trailer were in serviceable condition. This takes into consideration that the various mechanical components of the steering system and braking system were found to be intact and undamaged.

17. The observation gathered from my physical inspection of the Motor Trailer had indicated no evidence to suggest possible mechanical failure to the Motor Trailer that may have contributed to the accident.

18. The 2 front tyres, 4 rear tyres fitted on the Motor Trailer and the 12 tyres of the trailer 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 Motor Trailer 6 tyres and the 12 tyres of the trailer. The 6 tyres of the Motor Trailer and the 12 tyres of the trailer were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 7.1mm – 14.3mm. & 9.3mm – 9.5mm.

19. My findings were based solely on a static and visual inspection of the Motor Trailer. No operational test(s) could be carried out to the Motor Trailer as its engine could not be started at the time of my inspection.

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