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Your Ref: TP/IP/00085/20201
Our Ref : CI/TPD21003851/P

29th March 2021

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

MECHANICAL INSPECTION REPORT OF MOTOR VAN GBK 5366E

1. I refer to your request on 25th March 2021 to conduct a physical inspection of a Motor Van bearing registration number GBK 5366E (herein referred to as "**Motor Van**"), which was involved in a fatal road traffic accident on 2nd January 2021

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

3. Following the request, I had carried out a physical inspection of the Motor Van on 29th March 2021 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.

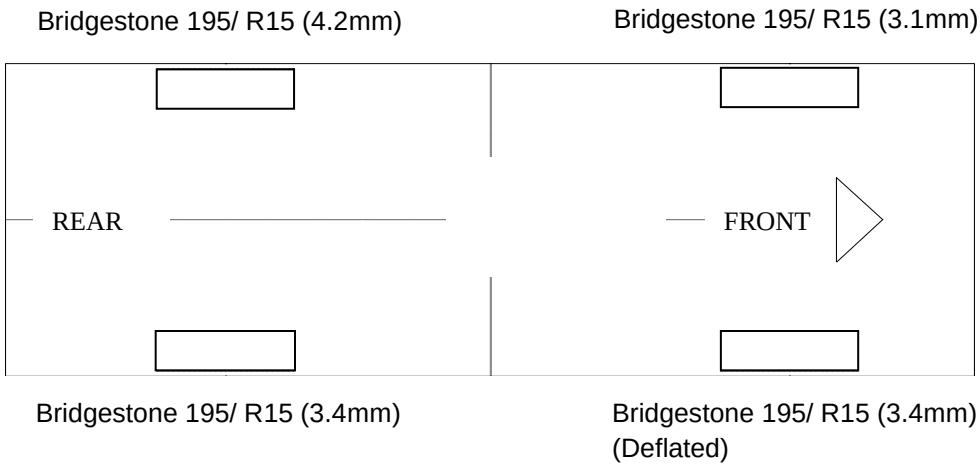
General Condition

4. The mileage of the Motor Van at the time of my inspection was not recorded as the engine was unable to be jumpstarted up despite multiple attempts in jumpstarting it.

5. The Motor Van appeared to have sustained damage at its frontal, right and rear portion at the time of my inspection. Its front windscreen, front body panel, right door, right body panel, rear windscreen and rear body panel and front engine radiator were damaged as a result of the accident.

Tyres and Wheel Rims

6. The front right tyre was observed to be deflated as a result of the accident. However, the other 3 tyres of the Motor Van 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 4 tyres. The tyre brand, tyre size and remaining tread depth of the 4 tyres of the Motor Van were recorded as follows:-



7. The 4 tyres were observed to be wrapped around standard steel wheel rims that were found to be without any damage. See photo 1 – 14 below.

Photo 1 shows a general view of the rear body of the Motor Van at the time of my inspection. It appeared to have sustained damage at its rear portion. Its rear windscreen and rear body panel were damage at the time of my inspection as a result of the accident.

Photo 2 shows a close up view of the rear body of the Motor Van at the time of my inspection. It appeared to have sustained damage at its rear portion. Its rear windscreen (circled) were damage at the time of my inspection as a result of the accident.

Photo 3 shows a general view of the rear body of the Motor Van at the time of my inspection. It appeared to have sustained damage at its rear portion. Its rear body panel (circled) were damage at the time of my inspection as a result of the accident.

Photo 4 shows a general view of the Motor Van's frontal portion at the time of my inspection. Its front windscreen, front body panel and front engine radiator were damaged as a result of the accident.

Photo 5 shows a close up view of the Motor Van's frontal portion at the time of my inspection. It appeared to have sustained damage at its frontal portion. Its front windscreen (circled) was damage at the time of my inspection as a result of the accident.

Photo 6 shows a close up view of the Motor Van's frontal portion at the time of my inspection. It appeared to have sustained damage at its frontal portion. Its front body panel (circled) and engine radiator (arrowed) was damage at the time of my inspection as a result of the accident.

Photo 7 shows a general view of the right body of the Motor Van at the time of my inspection. Its right door and right body panel were damaged as a result of the accident.

Photo 8 shows a close up view of the right body of the Motor Van at the time of my inspection. Its right door (circled) were damaged as a result of the accident.

Photo 9 shows a close up view of the right body of the Motor Van at the time of my inspection. Its right body panel (circled) were damaged as a result of the accident.

Photo 10 shows a general view of the left body of the Motor Van at the time of my inspection. The Motor Van was observed to be intact and unaffected by the accident.

Photo 11 shows the condition of the front right tyre of the Motor Van, which was observed to be deflated as a result of the accident with remaining tread depth of approximately 3.4mm. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 4 tyres that were fitted on the Motor Van.

Photo 12 shows the condition of the rear right tyre of the Motor Van, which was observed to be in serviceable condition with remaining tread depth of approximately 3.4mm. The tyre, which was wrapped around standard steel wheel rim, it was observed to be sufficiently inflated for vehicular operation.

Photo 13 shows the condition of the rear left tyres of the Motor Van, which was observed to be in serviceable condition with remaining tread depth of approximately 4.2mm. 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 4 steel wheel rims of the Motor Van.

Photo 14 shows the condition of the rear right tyres of the Motor Van, which were observed to be in serviceable condition with remaining, tread depth of approximately 3.1mm. 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 4 tyres that were fitted on the Motor Van.

Engine Compartment & Operating Fluids

8. Upon examination of the Motor Van'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 and power steering fluid were all found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids. However, the engine coolant was found to be insufficient as the accident had damaged the engine radiator and caused the coolant to leak out.

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 Van.

10. My subsequent checks on the underside of the Motor Van also revealed no fluid stain. Visually, the various undercarriage components of the Motor Van were all observed to be intact and without any visible damage. See photo 15 – 21 below.

Photo 15 shows a general view of the Motor Van's engine compartment, which was accessed by lifting the front cabin of the Motor Van. 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 16 shows the brake fluid reservoir of the Motor Van at the time of my inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.

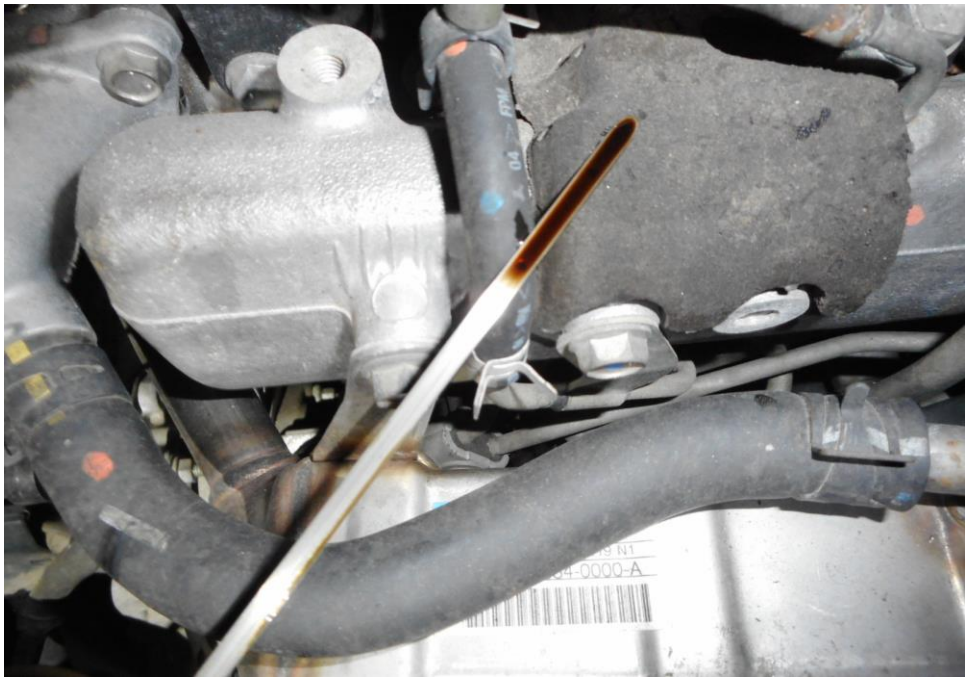


Photo 17 shows the engine oil dip stick of the Motor Van at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

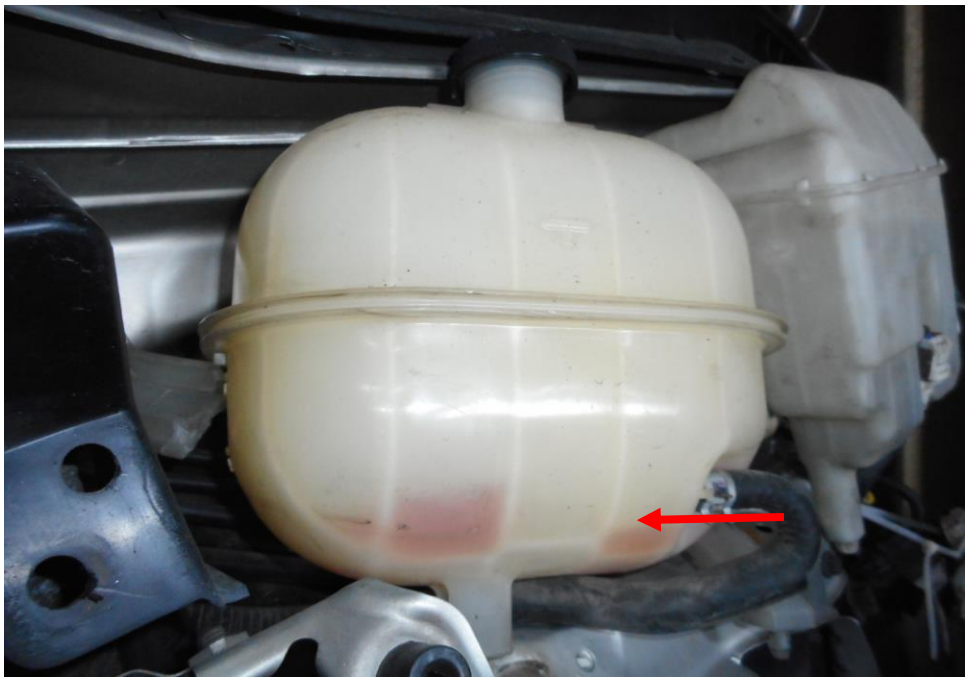


Photo 18 shows the engine coolant reservoir of the Motor Van at the time of my inspection. The engine coolant was observed to be of insufficient level (arrowed) as the engine radiator had been damaged by the accident which caused a leakage of engine coolant.

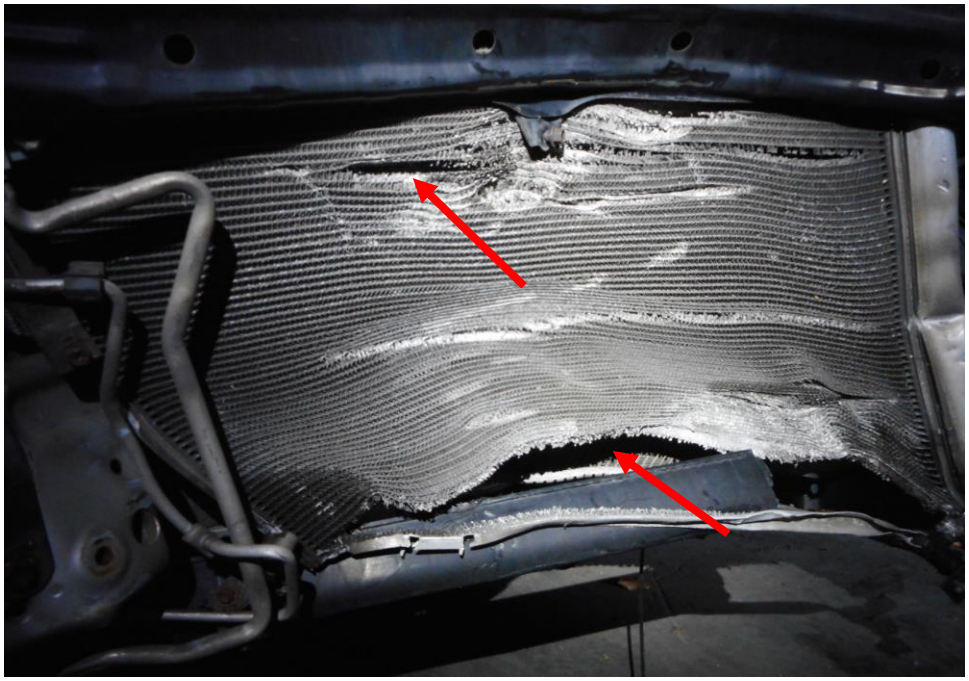


Photo 19 shows the engine radiator of the Motor Van at the time of my inspection. The engine coolant was observed to be leaked out from the radiator (arrowed) as the engine radiator had been damaged by the accident.

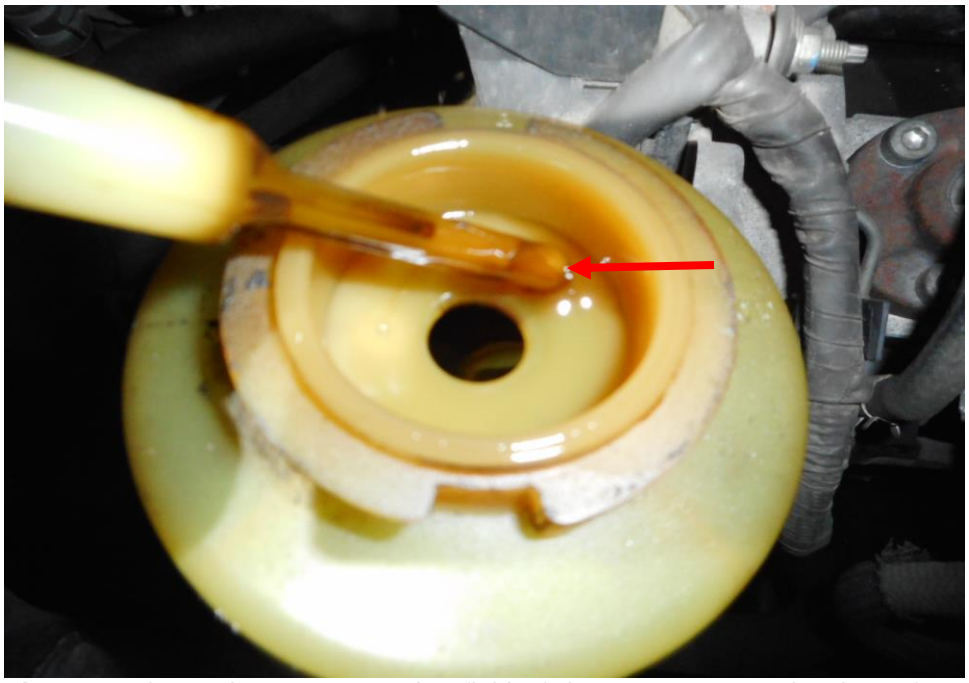


Photo 20 shows the power steering fluid of the Motor Van at the time of my inspection. The power steering fluid (arrowed) was observed to be of sufficient level and without any visible contamination.

Photo 21 shows the undercarriage of the Motor Van, at the area where the engine housing and transmission housing are located. . I did not find any sign(s) or indication(s) of fluid leak and/or fluid stain(s) on the underside of the Motor Van.

Steering System & Braking System

11. Static brake tests conducted on the Motor Van 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 Van. The braking system of the Motor Van 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. For this inspection, I was not able to conduct any tests on the steering system of the Motor Van due to the Motor Van running on power steering which requires the Motor Van to be started and engine system and the engine was unable to be started up. (Unable to be started) However, 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 22 - 28 below.

Photo 22 shows the jumpstarting process of the Motor Van's engine. The engine of the Motor Van was unable to be jumpstarted up despite multiple attempts in starting it.

Photo 23 shows the various undercarriage components at the front right wheel of the Motor Van, 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 Van 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 24 shows the various undercarriage components at the front left wheel of the Motor Van, in particular the steering tie rod end (arrowed). The various undercarriage components of the Motor Van 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 25 shows the brake pipe (arrowed) at the rear right wheel of the Motor Van. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Van. My static tests of the Motor Van'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 Van was likely to be in serviceable condition at the material time of accident.

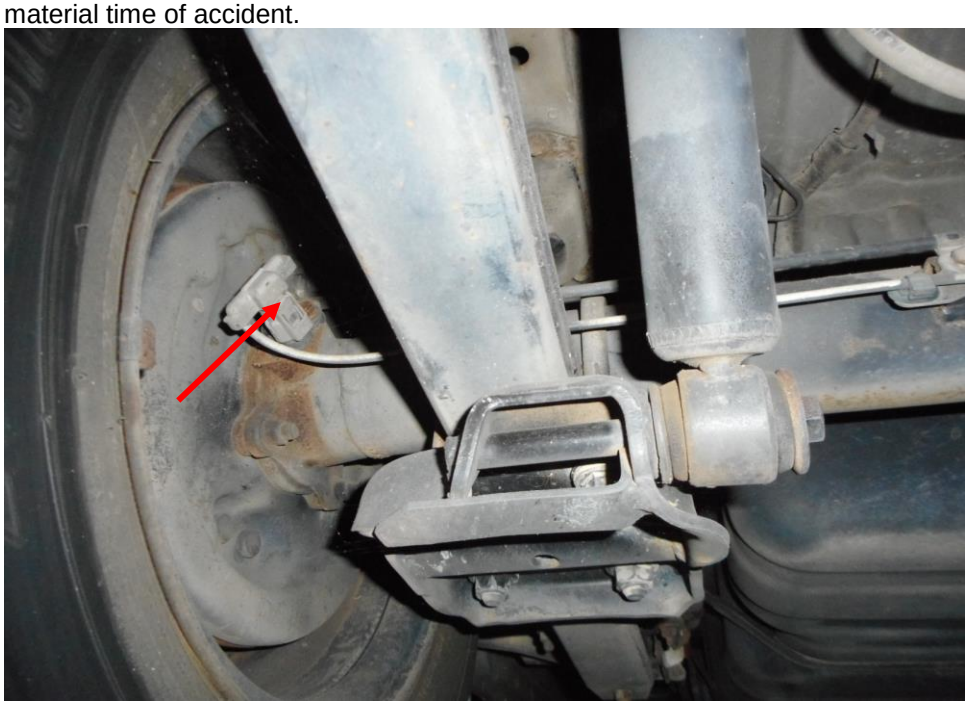


Photo 26 shows the brake pipe (arrowed) at the rear left wheel of the Motor Van. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Van. My static tests of the Motor Van's braking system, along with my visual examination of the various mechanical components in the braking system had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Van was likely to be in serviceable condition at the material time of accident.

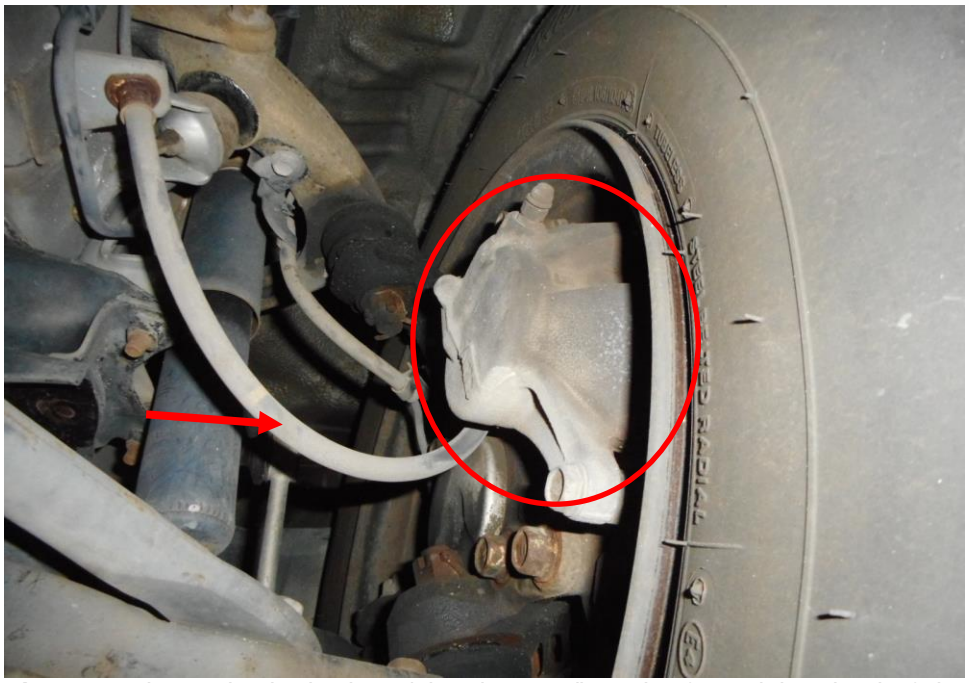


Photo 27 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Van. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

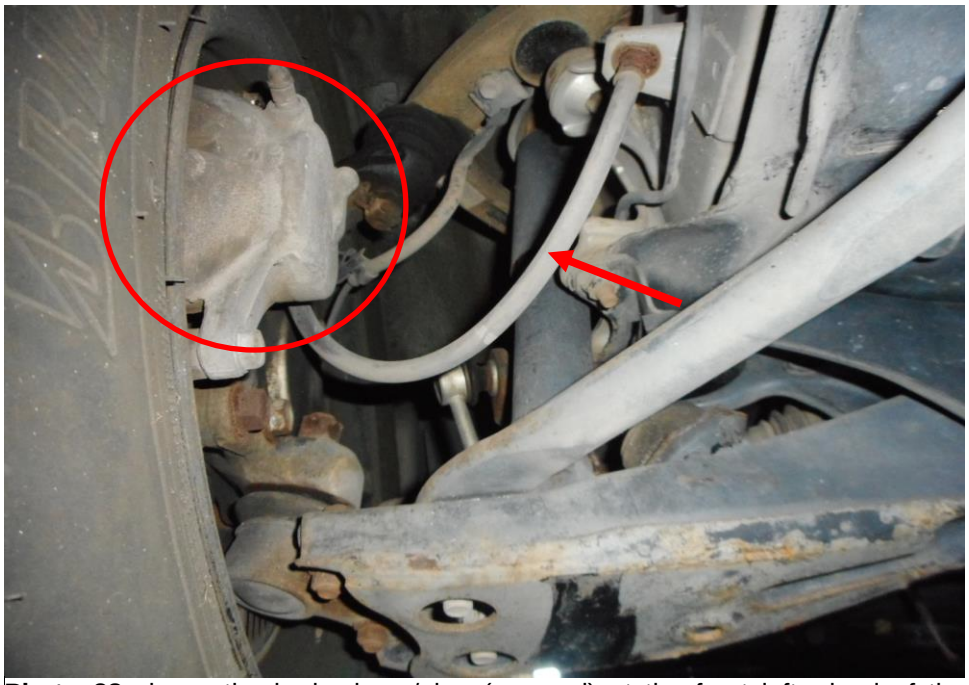


Photo 28 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Van. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Electronic Safety / Warning Indicators

13. The Motor Van's automatic self-test of the functionality of its various electronic operating systems was not able to be conducted as the engine system was unable to be jumpstarted up despite multiple attempts in jumpstarting it. (unable to be started)

Seat Belts

14. The front right and front left seat belts of the "Motor Van" were tested and all the seat belts were able to be fastened securely into the respective pre-tensioners that were fitted at the sides of each seat.

Operational Behaviour of the Motor Van

15. A short operational test to primarily determine whether there was any abnormality to the engine system, transmission system and braking system of the Motor Van could not be conducted given the engine of the Motor Van was unable to be started up.

Conclusion

16. For this particular case, I was unable to determine whether there was any possible mechanical failure to the Motor Van that may have contributed to the accident. Its engine not able to be started up had prevented me from carrying out any operational test(s) and/or static test(s) to its engine system, transmission system, steering system and suspension system.

17. However static brake tests able to be conducted and in general our visual inspection of the mechanical components of the Motor Van's braking system appear to suggest that its braking system was in serviceable condition at the material time of accident and there was no leakage found at the braking components of the Motor Van.

18. The front right tyre was observed to be deflated as a result of the accident. However, the other 3 tyres fitted on the Motor Van were 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 4 tyres. The 4 tyres were also observed with remaining tread depth of approximately 3.1mm – 4.2mm.

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