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Your Ref: TP/IP/ 26771/2021
Our Ref : CI/TPD21007264/P

2nd July 2021

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

MECHANICAL INSPECTION REPORT OF MOTOR VAN GP 6563K

1. I refer to your request on 30th June 2021 to conduct a physical inspection of a Motor Van bearing registration number GP 6563K (herein referred to as "**Motor Van**"), which was involved in a road traffic accident on 1st June 2021.

2. The objective of the 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 2nd July 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.

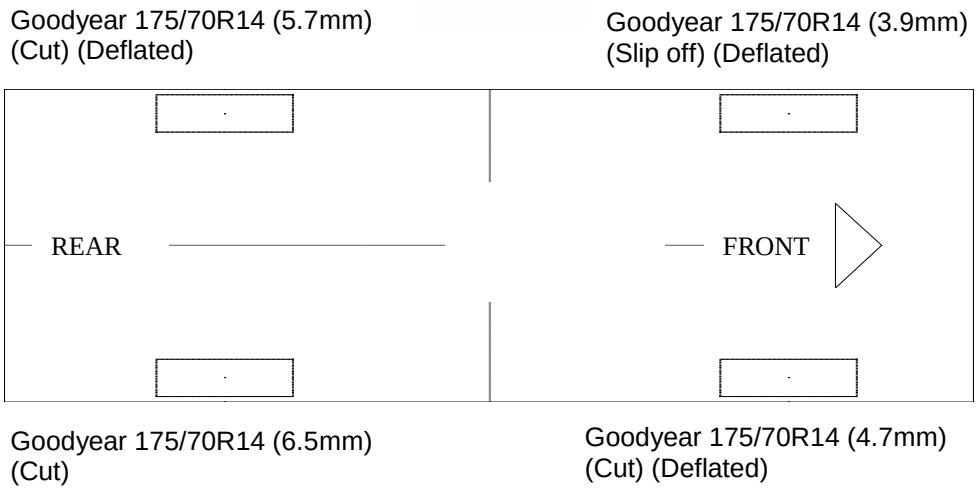
General Condition

4. The mileage of the Motor Van at the time of my inspection was not recorded as the Motor Van was not started due the damaged the engine had sustained as a result of the accident.

5. The Motor Van was observed to have sustained damage at its front portion. Its front windscreen, front bonnet, front bumper, front left and right fender and various engine components were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

6. The condition of the Motor Van's rear right tyre was observed to be in serviceable condition. However, the both front and rear left tyres was observed to be in unserviceable condition. I found cut mark(s) on the outer sidewalls on the front right and rear left tyres and the front left tyre had slipped off the wheel rim as a result of the accident. The tyre brand, tyre size and remaining tread depth of the 4 tyres were recorded as follows:-



7. The 4 tyres were observed to be wrapped around standard steel wheel rims that were found to be damage as a result of the accident. See photo 1 – 17 below.

Photo 1 shows a general view of the Motor Van's front body at the time of my inspection. The Motor Van was observed to have sustained damage at front portion. Its front windscreen, front bonnet, front bumper, front left and right fender and various engine components were amongst the body parts that were damaged as a result of the accident.

Photo 2 shows the close up view of the Motor Van's front body at the time of my inspection. The Motor Van was observed to have sustained damage at its front portion. Its front bonnet (arrowed) and front windscreen (circled) were amongst the body parts that were damaged as a result of the accident.

Photo 3 shows the close up view of the Motor Van's front body at the time of my inspection. The Motor Van was observed to have sustained damage at its front portion. Its front bumper (circled) were amongst the body parts that were damaged as a result of the accident.

Photo 4 shows the close up view of the Motor Van's front body at the time of my inspection. The Motor Van was observed to have sustained damage at its front portion. Its front right fender (circled) were amongst the body parts that were damaged as a result of the accident.

Photo 5 shows the close up view of the Motor Van's front body at the time of my inspection. The Motor Van was observed to have sustained damage at its front portion. Its front left fender (circled) were amongst the body parts that were damaged as a result of the accident.

Photo 6 shows a general view of the Motor Van's right body at the time of my inspection. The right portion of the Motor Van was observed to have been unaffected by the accident.

Photo 7 shows a general view of the Motor Van's left body at the time of my inspection. The left portion of the Motor Van was observed to have been unaffected by the accident.

Photo 8 shows the general view of the Motor Van's rear body at the time of my inspection. The Motor Van rear was observed to be unaffected by the accident.

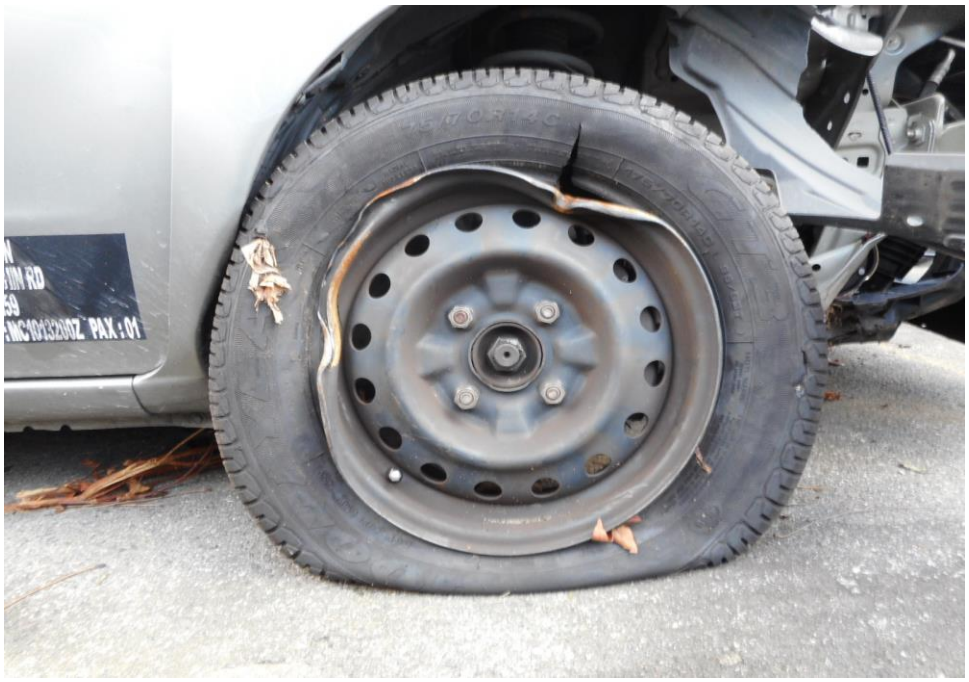


Photo 9 shows the condition of the front right tyre of the Motor Van, which was observed to be unserviceable condition with remaining tread depth of approximately 4.7mm. The tyre was observed with cut mark(s) on the outer sidewalls and there was damage observed on the wheel rims as a result of the accident.

Photo 10 shows the close up view of the condition of the front right tyre of the Motor Van, which was observed to be unserviceable condition with remaining tread depth of approximately 4.7mm. The tyre was observed with cut mark(s) on the outer sidewalls and there was damage observed on the wheel rims (circled) as a result of the accident.

Photo 11 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 6.5mm. The tyre was observed with cut marks and wheel rim damage as a result of the accident, however it was observed to be sufficiently inflated for vehicular operation

Photo 12 shows the close up view of 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 6.5mm. The tyre was observed with cut marks and wheel rim damage (circled) as a result of the accident, however it was observed to be sufficiently inflated for vehicular operation

Photo 13 shows the condition of the rear right tyre of the Motor Van, which was observed to be in serviceable condition. The tyre was observed with cut marks and wheel rim damage as a result of the accident, however it was observed to be sufficiently inflated for vehicular operation

Photo 14 shows the condition of the rear left tyre of the Motor Van, which was observed to be unserviceable condition with remaining tread depth of approximately 5.7mm. The tyre was observed with cut mark(s) on the outer sidewalls and there was damage observed on the wheel rims as a result of the accident.

Photo 15 shows the close up view of the condition of the rear left tyre of the Motor Van, which was observed to be unserviceable condition with remaining tread depth of approximately 5.7mm. The tyre was observed with cut mark(s) on the outer sidewalls and there was damage observed on the wheel rims (circled) as a result of the accident.

Photo 16 shows the condition of the front left tyre of the Motor Van, which was observed to be unserviceable condition with remaining tread depth of approximately 3.9mm. The tyre was observed to slip out the wheel rim and there was damage observed on the wheel rims as a result of the accident.

Photo 17 shows the close up view of the condition of the front left tyre of the Motor Van, which was observed to be unserviceable condition with remaining tread depth of approximately 3.9mm. The tyre was observed to slip out the wheel rim and there was damage observed on the wheel rims (circled) as a result of the accident.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Van, I had observed that the mounting of the engine was damaged as a result of the accident and caused the engine to fall to the bottom. However, all the parts and components inside the engine compartment to be intact and unaffected by the accident.

9. 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 revealed no sign(s) or indication(s) of fluid leakage and/or fluid stain within the engine compartment of the Motor Van.

11. My subsequent checks on the underside of the Motor Van revealed that the engine crankshaft and crankshaft timing belt had sustained damaged as a result of the accident. Visually, the other various undercarriage components of the Motor Van were all observed to be intact and without any visible damage. See photo 18 – 23 below.

Photo 18 shows a general view of the Motor Van's engine compartment. The various parts and components inside the engine compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fluid leakage and/or fluid stain within the engine compartment.

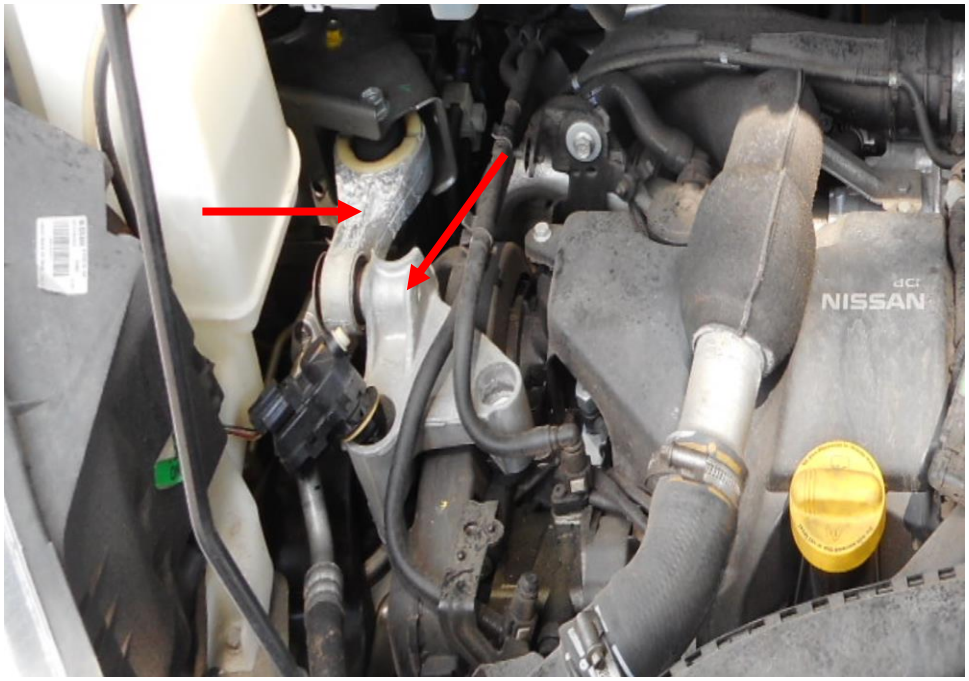


Photo 19 shows the engine mounting of the Motor Van at the time of my inspection. The mounting (arrowed) was observed to be damaged and broken off from the engine as a result of the accident and caused the engine to fall to the bottom.

Photo 20 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 21 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 22 shows checks being carried out to the engine coolant of the Motor Van at the time of my inspection. The engine coolant was observed to be of sufficient level (arrowed) and without any visible contamination.

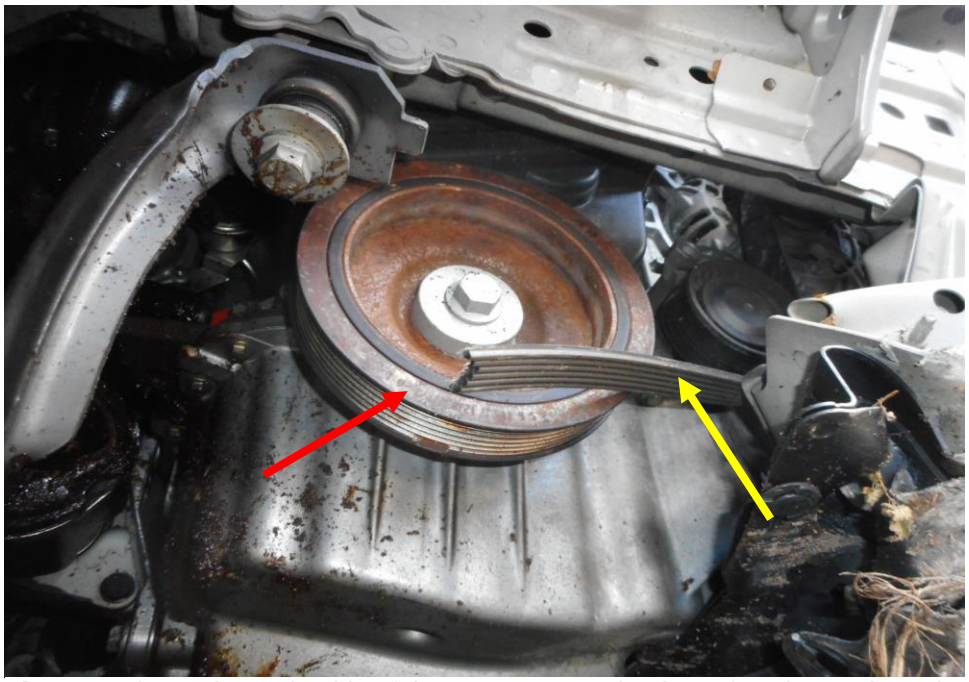


Photo 23 shows the underside of the Motor Van at the time of my inspection. The engine crankshaft timing bet (yellow arrow) and the engine crankshaft was damaged (red arrow) as a result of the accident.

Braking System & Steering System

12. 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 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.

13. Static test on the steering system of the Motor Van was not conducted as it uses electric power steering system which requires the engine to be started, and the Motor Van was not started due to the damaged to the engine. However, my visual examination of the various steering components which had included the steering rack and pinion, tie rod ends and ball joints revealed that these components were all generally in good condition.

14. We have observed that the Motor Van's front right control arm and front right driveshaft was damaged as a result of the accident. See photo 24 - 30 below.

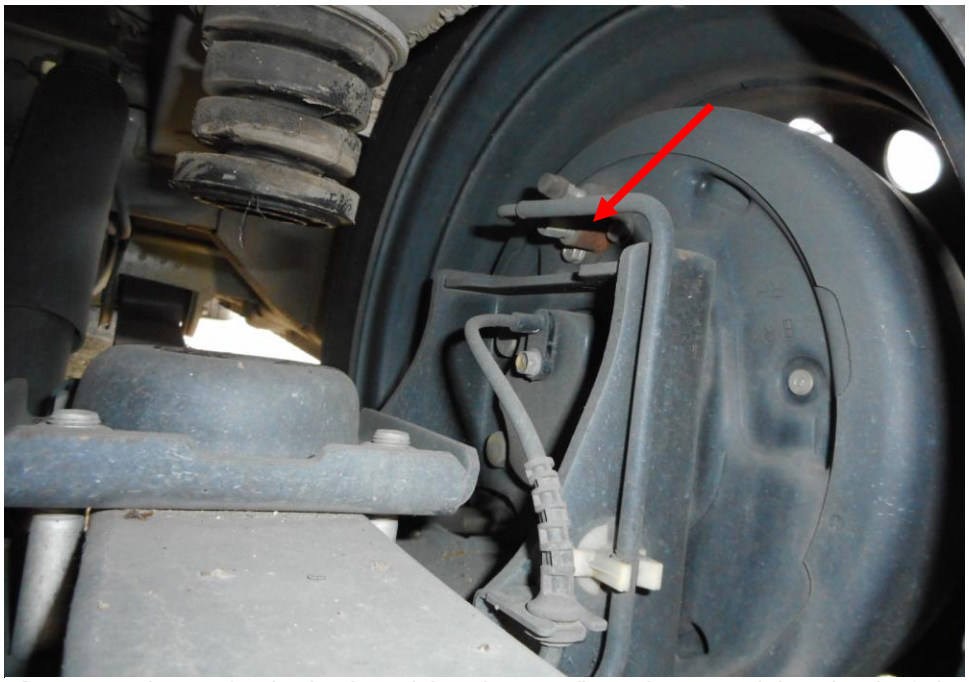


Photo 24 shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Van. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

Photo 25 shows the brake hose/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. Static tests of the Motor Van's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Van were also all found to be intact and without any visible damage.

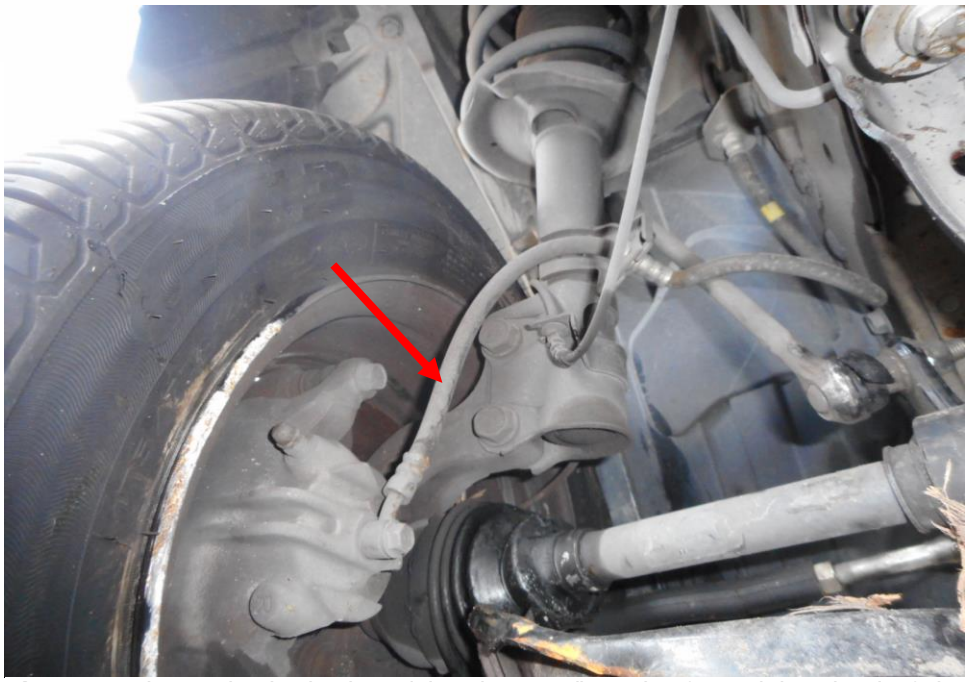


Photo 26 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Van. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Van. Static tests of the Motor Van's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Van were also all found to be intact and without any visible damage.

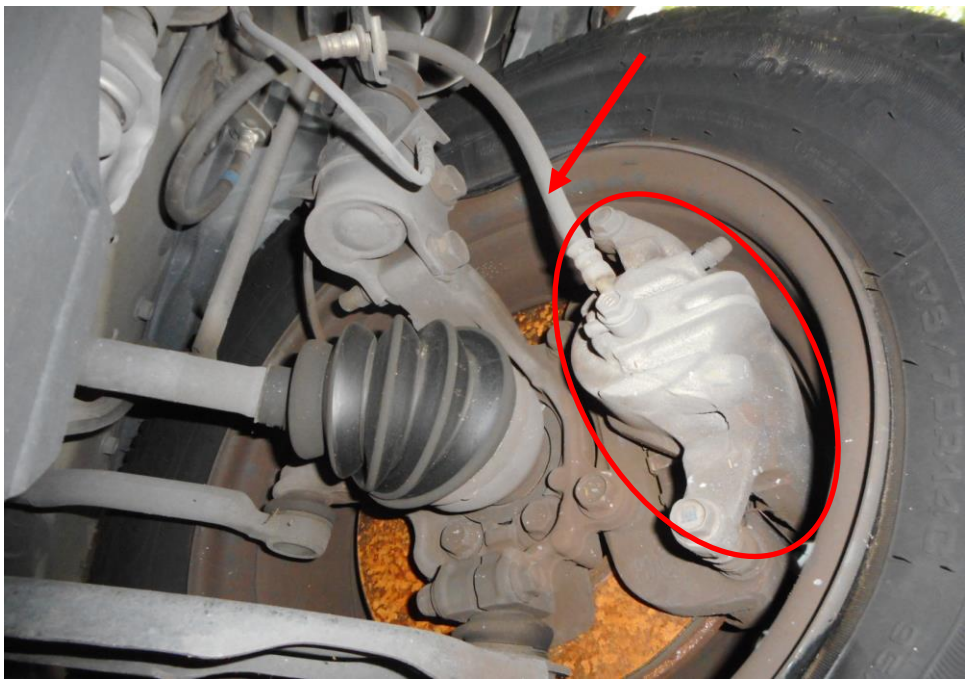


Photo 27 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Van. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage.

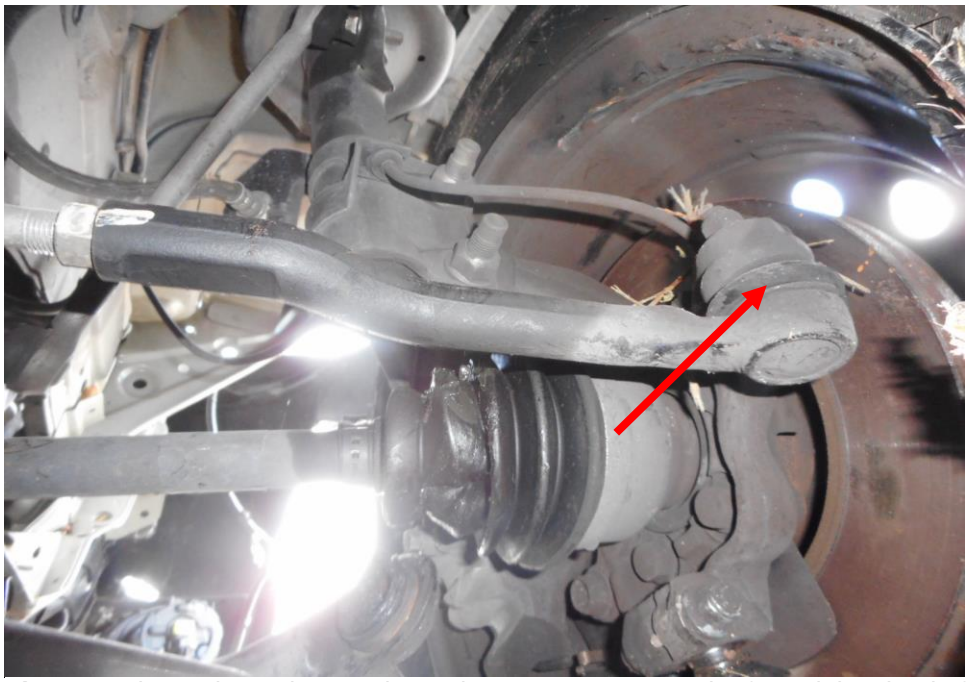


Photo 28 shows the various undercarriage components at the front right wheel of the Motor Van, in particular the steering tie rod (red arrow). The various steering components were all found to be intact, suggesting that the steering system of the Motor Van was likely to be in serviceable condition at the material time of accident. There was also no sign of fluid stain observed on the various undercarriage components at the front right wheel of the Motor Van.

Photo 29 shows the various undercarriage components at the front left wheel of the Motor Van, in particular the steering tie rod (red arrow). 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 observed on the various undercarriage components at the front left wheel of the Motor Van.

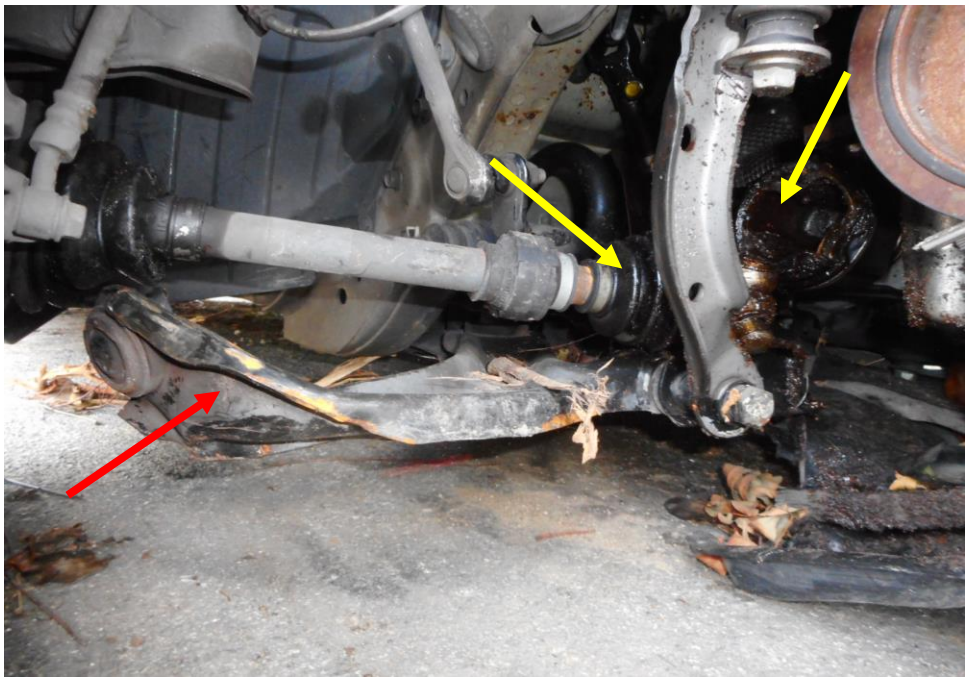


Photo 30 shows the various undercarriage components at the front right wheel of the Motor Van, we observed that the front right control arm (red arrow) and front right driveshaft (yellow arrow) had sustained damage as a result of the accident.

Electronic Safety / Warning Indicators

15. The Motor Van's automatic self-test of the functionality of its various electronic operating systems was not able to be conducted as there was engine system as a result of the accident.

Seat Belts

16. The front left and front right 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

17. An operational test by driving the Motor Van 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 extent of damage that it had sustained to its engine system.

Conclusion

18. 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. The extent of damage that it had sustained had prevented me from carrying out any operational test(s). However it appears that it's braking system were all in found to be in serviceable condition at the material time. I did not find any evidence(s) to suggest that there was possible mechanical failure and/or abnormal behaviour to the Motor Van that may have caused and/or contributed to the accident.

19. The rear right tyre of the Motor Van were found to be in serviceable condition. However, the other 3 tyres were found to be unserviceable condition as I found cut mark(s) on the outer sidewalls of the front right, rear left tyres and the front left tyre that have slip off its wheel rim. The 4 tyres were observed with remaining tread depth of approximately 3.9mm to 6.5mm.

Sherwin Beh
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