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Your Ref: TP/IP/47769/2021 17th November 2021
Our Ref : CI/TPD21011274/P

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

MECHANICAL INSPECTION REPORT OF MOTOR VAN GBG 6849T

1. I refer to your request on 29th October 2021 to conduct a physical inspection of a Motor Van bearing registration number GBG 6849T (herein referred to as "**Motor Van**"), which was involved in a road traffic accident on 6th October 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 16th November 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.

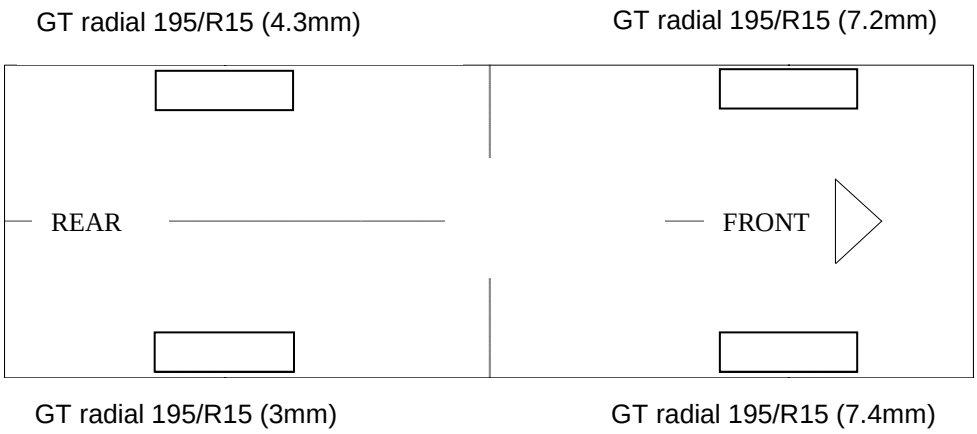
General Condition

4. The mileage of the Motor Van at the time of my inspection was 79,745km.

5. The Motor Van appeared to have sustained damage at its frontal portion. Its front body panel, front bumper, front bumper reinforcement and its engine radiator were also damage at the time of my inspection.

Tyres and Wheel Rims

6. The 4 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 – 12 below.

Photo 1 shows a general view of the instrument cluster of the Motor Van at the time of my inspection. The mileage of the Motor Van was 79,745km

Photo 2 shows a general view of the rear 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 3 shows a general 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, front bumper, front bumper reinforcement and its engine radiator were also damage at the time of my inspection.

Photo 4 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) was damage at the time of my inspection 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 bumper and front bumper reinforcement (circled) was damage at the time of my inspection as a result of the accident.

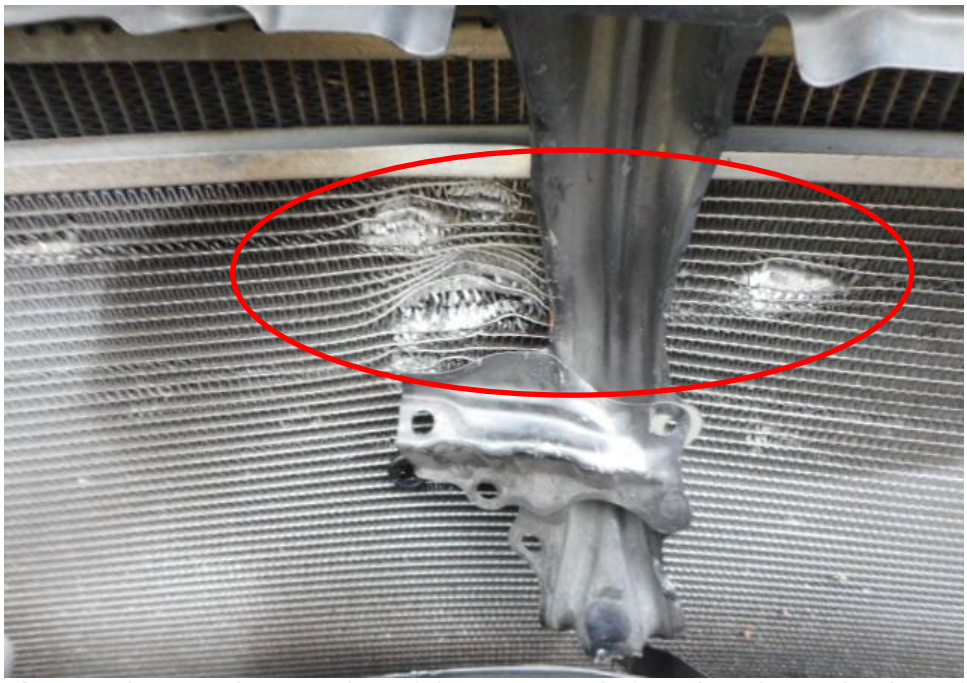


Photo 6 shows a close up view of the Motor Van's frontal portion at the time of my inspection. It appeared to have sustained damage at its frontal portion. Its engine radiator (circled) was damage at the time of my inspection as a result of the accident.

Photo 7 shows a general view of the right body of the Motor Van at the time of my inspection. The Motor Van was observed to be intact and unaffected by the accident.

Photo 8 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.

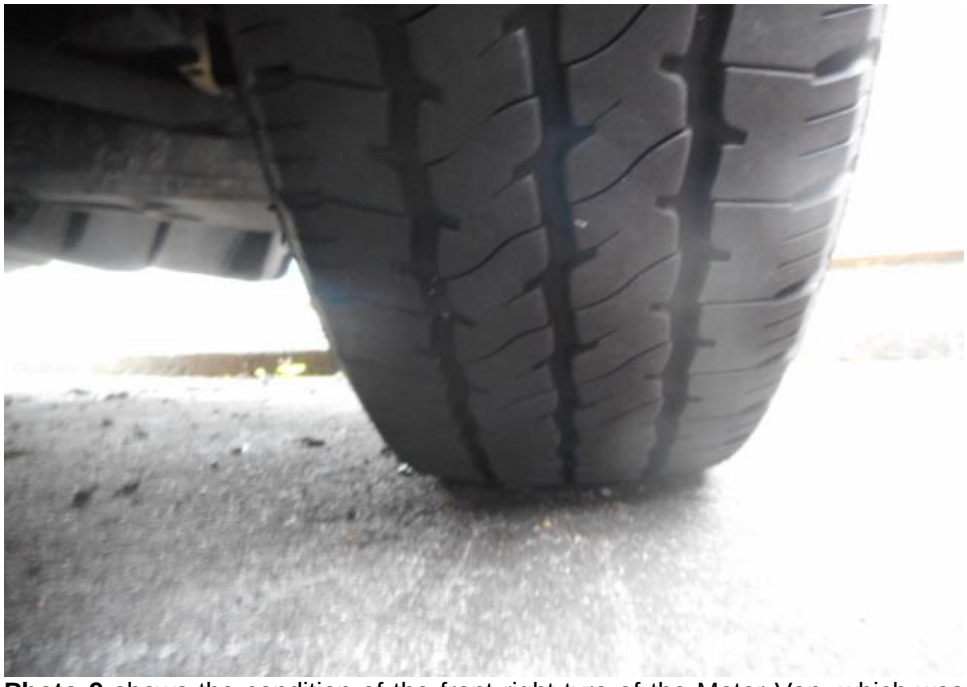


Photo 9 shows the condition of the front right tyre of the Motor Van, which was observed to be in serviceable condition with remaining tread depth of approximately 7.4mm. The tyre, which was wrapped around standard steel wheel rim, was also observed to be sufficiently inflated for vehicular operation. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 4 tyres that were fitted on the Motor Van.

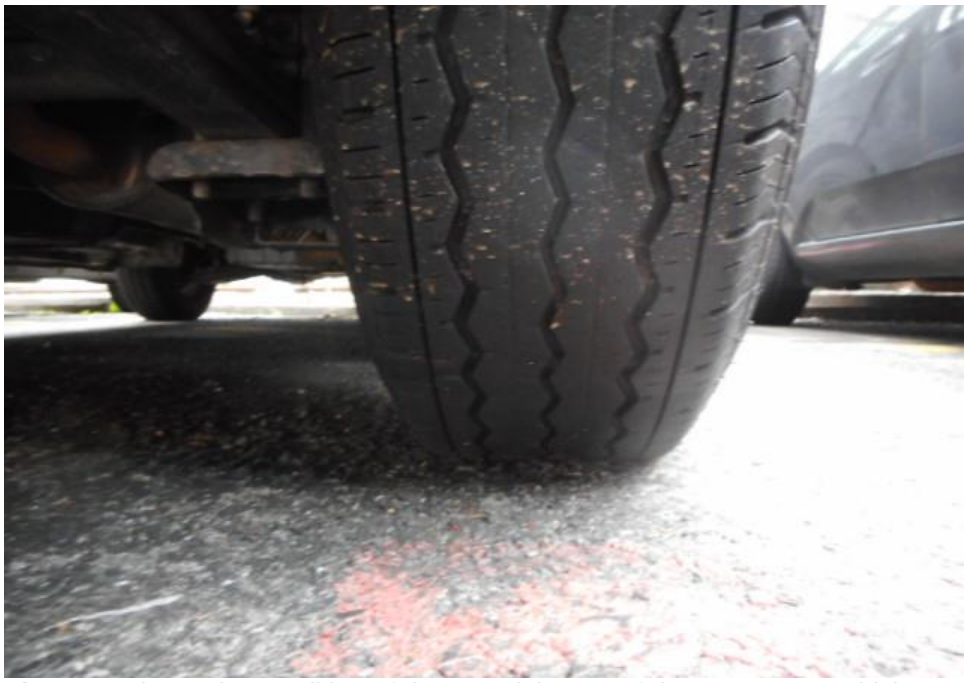


Photo 10 shows the condition of the rear right tyre of the Motor Van, which was observed to be in serviceable condition with remaining tread depth of approximately 3mm. The tyre, which was wrapped around standard steel wheel rim, it was observed to be sufficiently inflated for vehicular operation.

Photo 11 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 4.3mm. 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 4 steel wheel rims of the Motor Van.

Photo 12 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 7.2mm. 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 the engine radiator and its engine coolant reservoir to be damaged by the accident. However, all the other parts and components inside the engine compartment to be intact and unaffected by the accident. The engine coolant was observed to be insufficient due to the damage to the engine radiator and its engine coolant reservoir that had caused the leakage of the coolant. The brake fluid and engine oil 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 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 13 – 18 below.

Photo 13 shows a general view of the Motor Van's engine compartment, which was accessed by lifting the front cabin of the Motor Van. I had observed the engine radiator and its engine coolant reservoir to be damaged by the accident. However, the other 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.

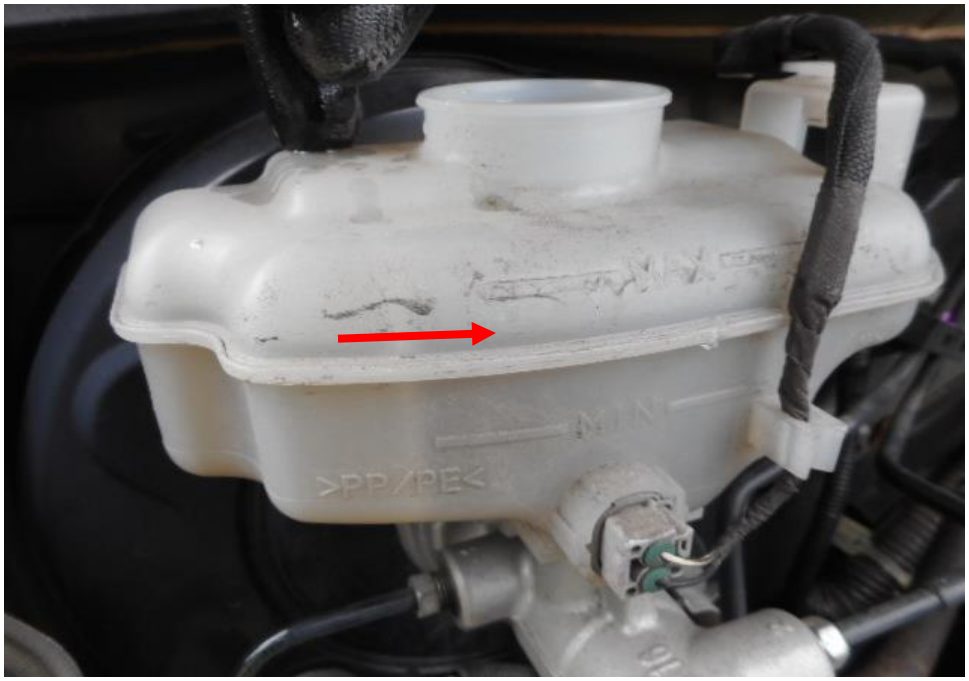


Photo 14 shows the brake fluid reservoir of the Motor Van at the time of my inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.

Photo 15 shows the engine coolant reservoir of the Motor Van at the time of my inspection. The engine coolant was observed to be of insufficient as the coolant reservoir was damaged as a result of the accident.

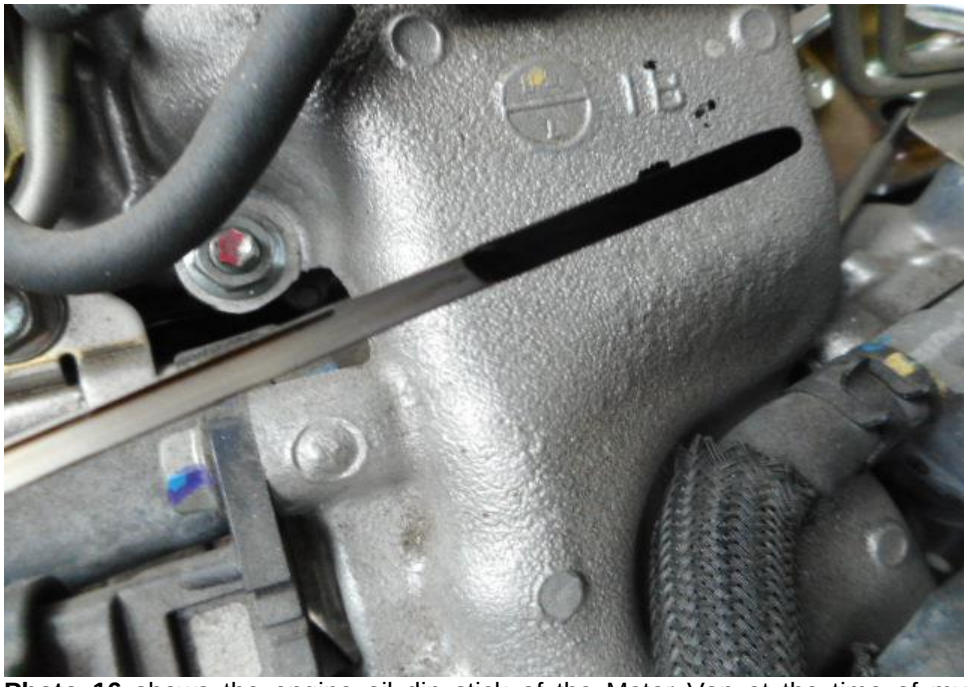


Photo 16 shows the engine oil dip stick of the Motor Van at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

Photo 17 shows the power steering fluid reservoir of the Motor Van at the time of my inspection. The power steering fluid was observed to be of sufficient level and without any visible contamination.

Photo 18 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. Static test on the steering system of the Motor Van also revealed no abnormality to the steering system. I did not experience any abnormal free play and/or other resistance when turning the steering wheel left and right to full lock positions. 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 19 - 25 below.

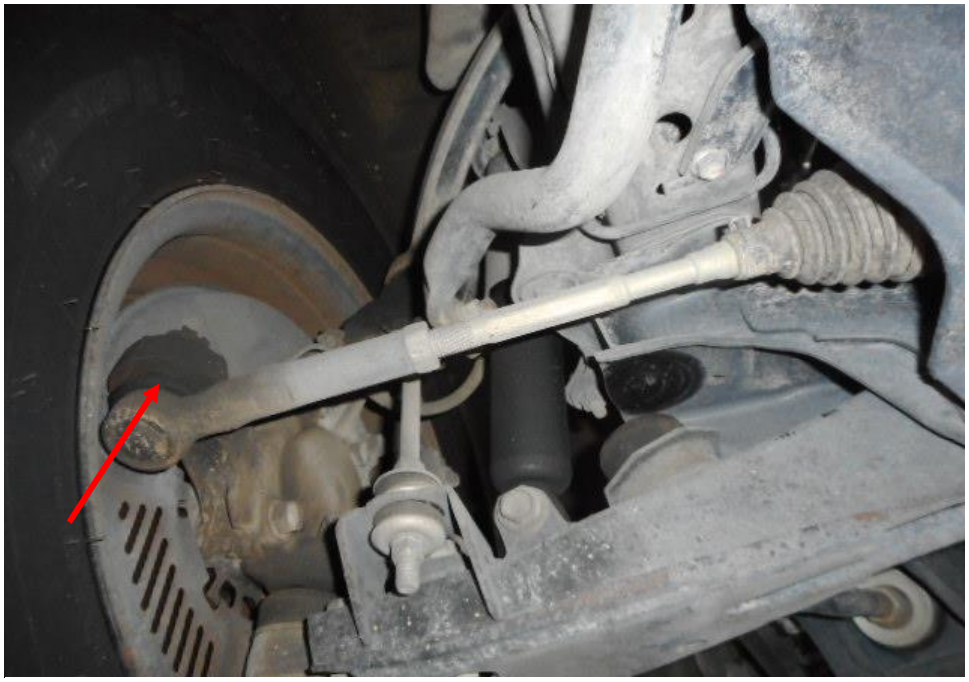


Photo 19 shows the various undercarriage components at the front right wheel of the Motor Van, in particular the steering tie rod end (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Van was likely to be in serviceable condition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

Photo 20 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.

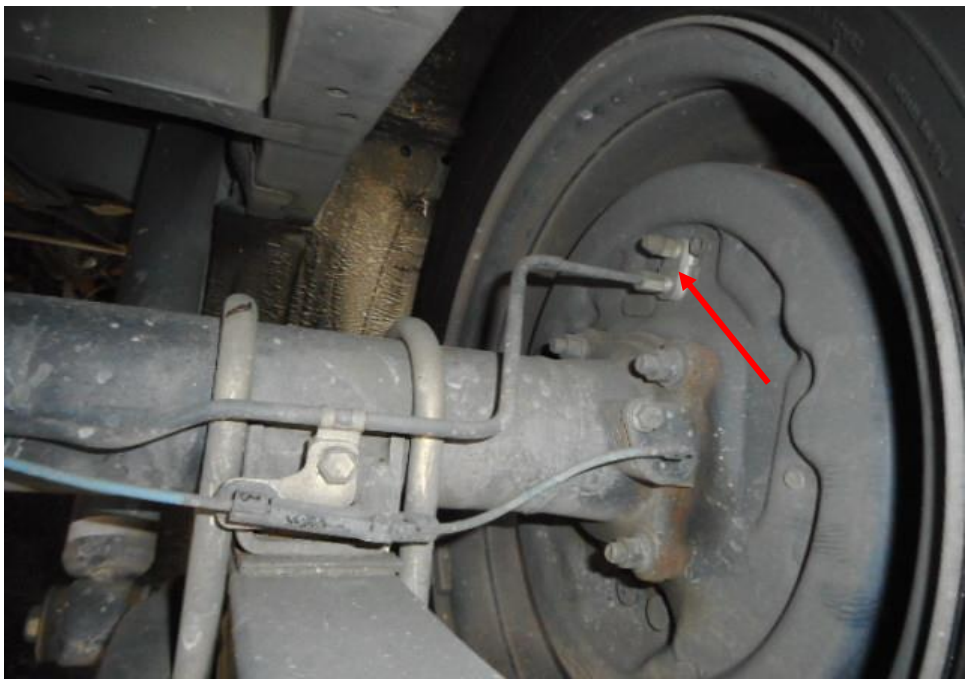


Photo 21 shows the brake pipe (arrowed) at the rear right wheel of the Motor Van. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Van. My static tests of the Motor Van's braking system, along with my visual examination of the various mechanical components in the 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 22 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 23 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 24 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.

Photo 25 shows the front right wheel of the Motor Van turned to its full left. During my steering system test, I did not experience any abnormal free play and/or resistance when I had turned the steering wheel towards full left and full right. This would suggest that the steering system of the Motor Van was likely to be in serviceable condition at the material time of accident.

Electronic Safety / Warning Indicators

13. Motor Van's automatic self-test of the functionality of its electronic operating systems like the Anti-Lock Brake System (ABS) during cranking of the engine had indicated that the system were in working condition and without abnormality. This can be established from the warning lights disappearing from the instrument panel after the self-test. See photo 26 & 27 below.

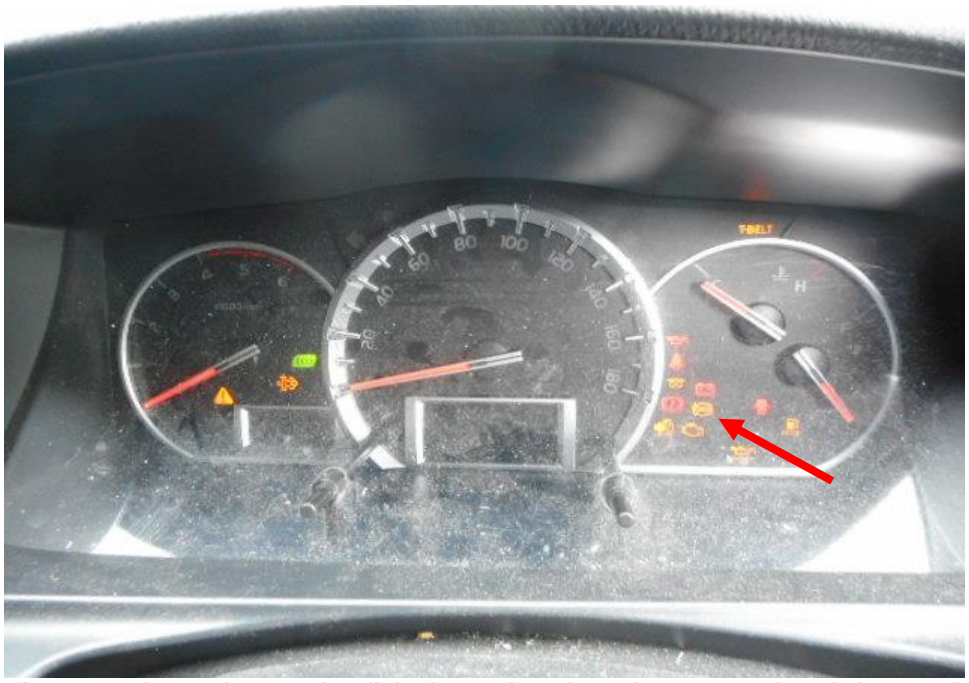


Photo 26 shows the warning light for Anti-Lock Brake System (ABS) (arrowed) appearing on the instrument panel of the Motor Van during the self-test of its various electronic operating systems when its engine was cranked.

Photo 27 shows no warning lights illuminated on the instrument panel of the Motor Van after the engine was cranked. This would suggest that there was no abnormality to the electronic operating system of the Motor Van, like the ABS and etc.

Operational Behaviour of the Motor Van

14. A short operational test of the Motor Van, to primarily determine whether there was any abnormality to its various operating systems like its engine system, its transmission system, steering system and braking system was subsequently carried out. The test was conducted by driving the Motor Van forward, stopping, before reversing and coming to a stop again.

15. During the operational test, the various transmission gears of the Motor Van were able to be engage without any difficulty and manually shifting the gear lever. There were no abnormal sounds heard and/or abnormal behaviour of the Motor Van's engine system. It was able to move forward and backward normally. The braking system was also found to be in working condition as the Motor Van was able to slow down and come to a complete stop upon depressing of the brake pedal. Refer to photo 2 & 25

Conclusion

16. From my physical inspection of the Motor Van, it appears that its engine system, steering system, braking system and transmission system were all in serviceable condition. I did not find any evidence(s) to suggest that there was possible mechanical failure to the Motor Van that may have caused and/or contributed to the accident. This is also taking into consideration that the operational test of the Motor Van, which I had conducted, did not produce any sign(s) or symptom(s) to suggest that there was any abnormality to its various operating systems.

17. The 4 tyres fitted on the Motor Van 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 4 tyres. The 4 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 3mm – 7.4mm.

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