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You're Ref: TP/IP/54933/2020
Our Ref: CI/TPD21000234/P

2nd February 2021

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

MECHANICAL INSPECTION REPORT OF MOTOR VAN GBB 2538T

1. I refer to your request on 5th January 2021 to conduct a physical inspection of a Motor Van bearing registration number GBB 2538T (herein referred to as "**Motor Van**"), which was involved in a road traffic accident on 13th December 2020.

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 28th January 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 602,072km.

5. The Motor Van was observed to have sustained damage at its front portion. Its front body panel, front grille and front bumper are the body parts that were damaged as a result of the accident. The Motor van was unable to be started up due to a mechanical issue to its clutch pedal.

Tyres and Wheel Rims

6. The condition of the Motor Van's 3 tyres was observed 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 3 tyres were also observed to be sufficiently inflated for vehicular operation. However the front left tyre was observed to be deflated likely due to the result of the accident. The tyre brand, tyre size and remaining tread depth of the 4 tyres were recorded as follows:-

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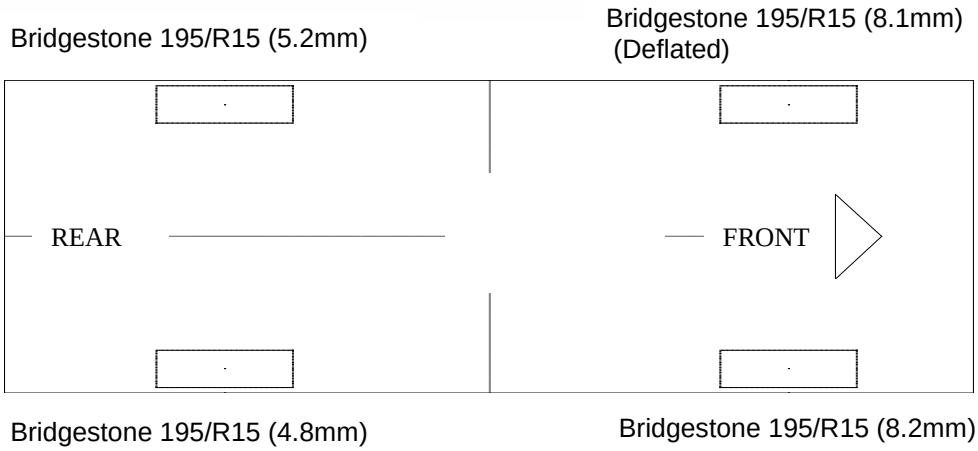

7. The 4 tyres were observed to be wrapped around standard alloy wheel rims that were found to be without any damage. See photo 1 – 11 below.

Photo 1 shows the mileage of the Motor Van at the time of my inspection. The mileage observed was 602,072km.

Photo 2 shows a general view of the Motor Van's front body at the time of my inspection. Its front body panel, front grille and front bumper are 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. Its front body panel (arrowed) and front grille (circled) are 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. Its front bumper (circled) are the body parts that were damaged as a result of the accident.

Photo 5 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 6 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 7 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 8 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 8.2mm. The tyre was sufficiently inflated for vehicular operation with no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread. The 4 tyres of the Motor Van were wrapped around standard steel wheel rims without any damage.

Photo 9 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 4.8mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 10 shows the condition of the rear left tyre of the Motor Van, which was observed to be in serviceable condition with remaining tread depth of approximately 5.2mm. The tyre, which was wrapped around steel wheel rim, was also observed to be sufficiently inflated for vehicular operation. The 4 tyres of the Motor Van were wrapped around standard steel wheel rims.

Photo 11 shows the condition of the front left tyre of the Motor Van, which was observed to be deflated likely due to the result of the accident. The with remaining tread depth of approximately 8.1mm

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Van, 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 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 no sign(s) or indication(s) of 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 sign(s) or indication(s) of fluid leak and/or fluid stain(s). Visually, the various undercarriage components of the Motor Van were all observed to be intact and without any visible damage. See photo 12 – 16 below.

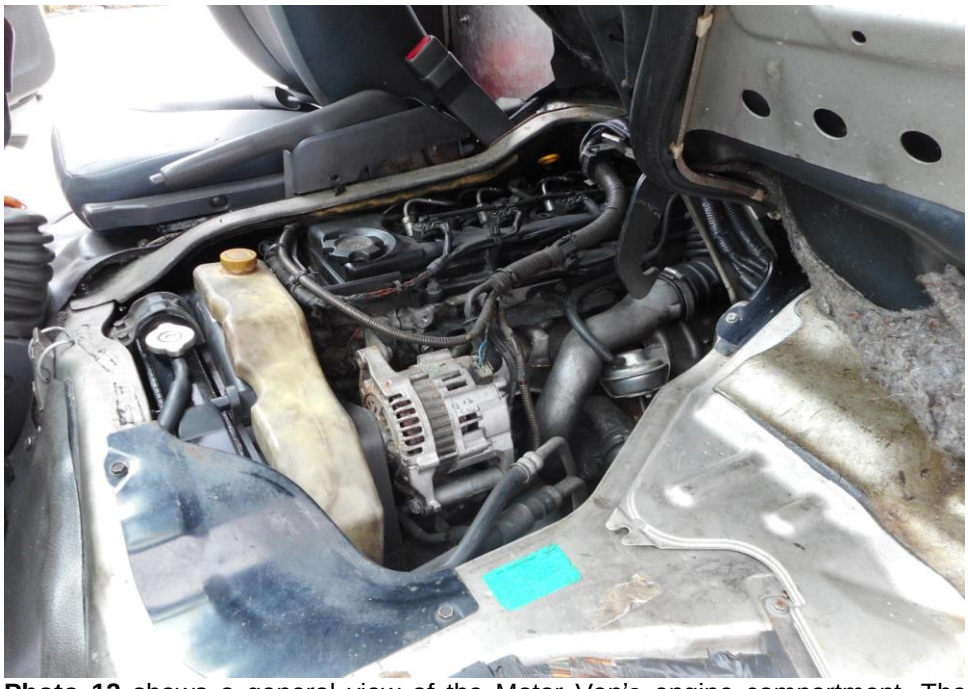

Photo 12 shows a general view of the Motor Van's engine compartment. The various parts and components inside the engine compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fluid leakage and/or fluid stain within the engine compartment.

Photo 13 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 14 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 15 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 16 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.

Braking System & Steering System

11. For this inspection, I was not able to conduct any tests on the steering system of the Motor Van due to the Motor Van's steering system requires the Motor Van engine to be started. During our investigation, we observed that the clutch pedal was faulty and to our understanding, the clutch pedal acts as a safety system and must be depressed before the engine is started, however we observed that the clutch pedal is faulty as the pedal is stuck in a position and would not return upon depressing.

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. See photos 17 - 25 below.

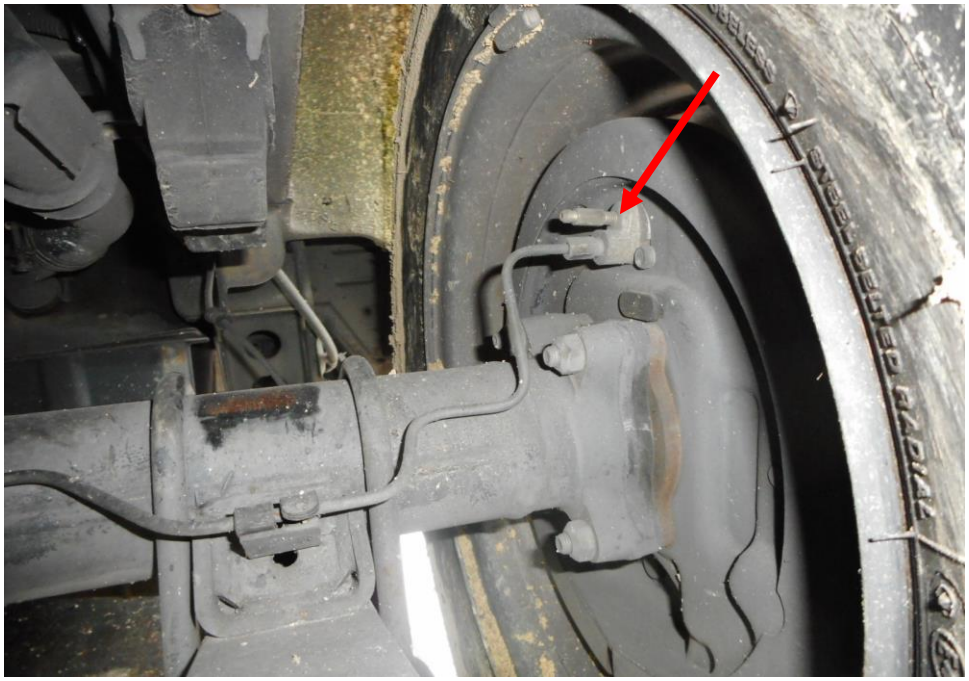

Photo 17 shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Van. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caplier, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

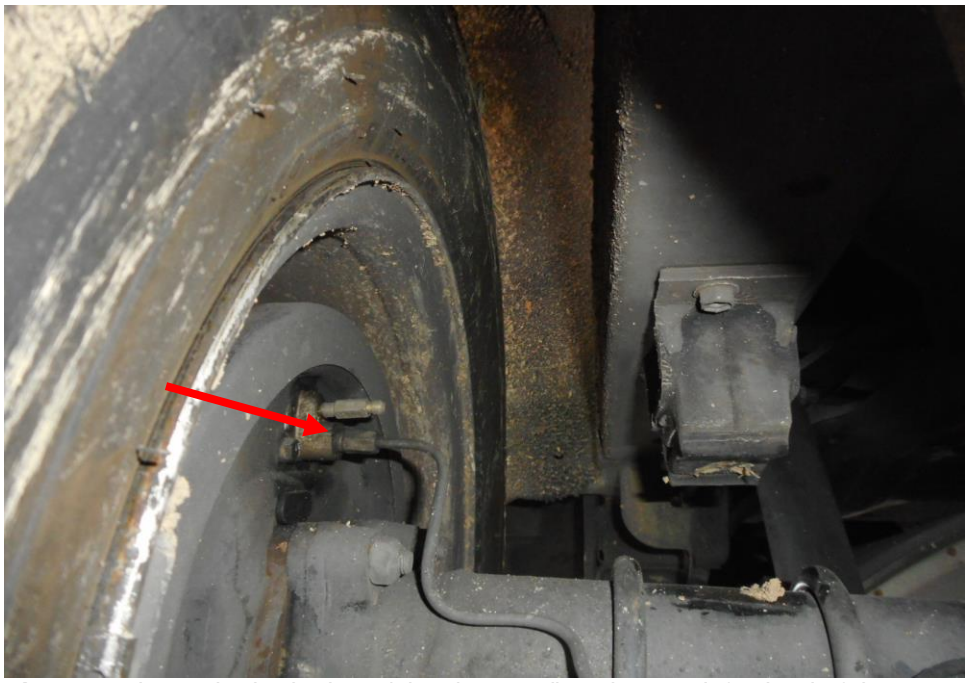

Photo 18 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Van. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Van. Static tests of the Motor Van's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Van were also all found to be intact and without any visible damage.

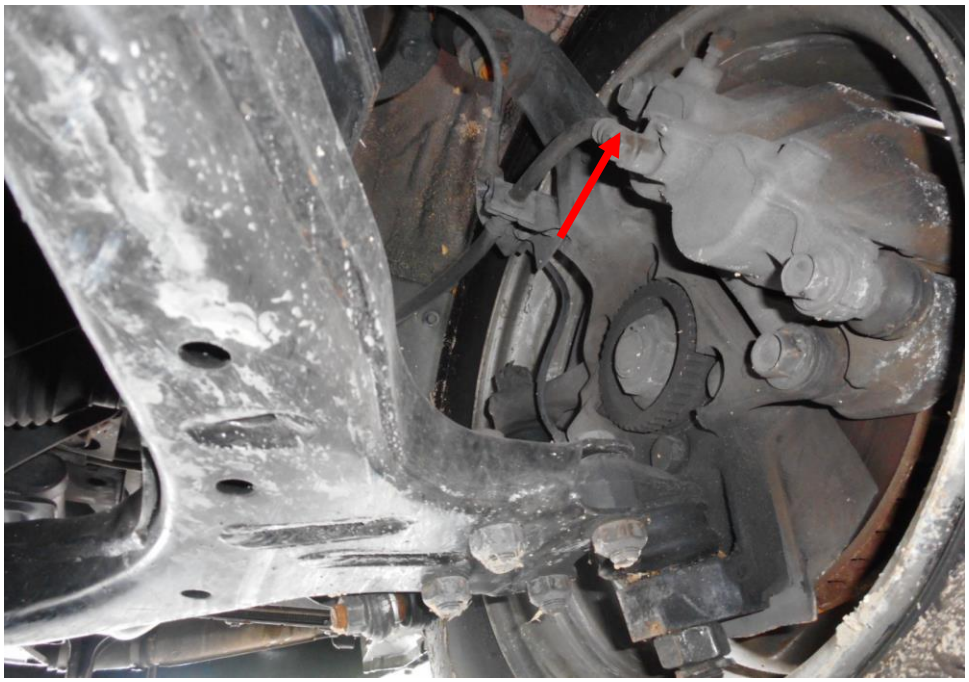

Photo 19 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Van. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Van. Static tests of the Motor Van's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Van were also all found to be intact and without any visible damage.

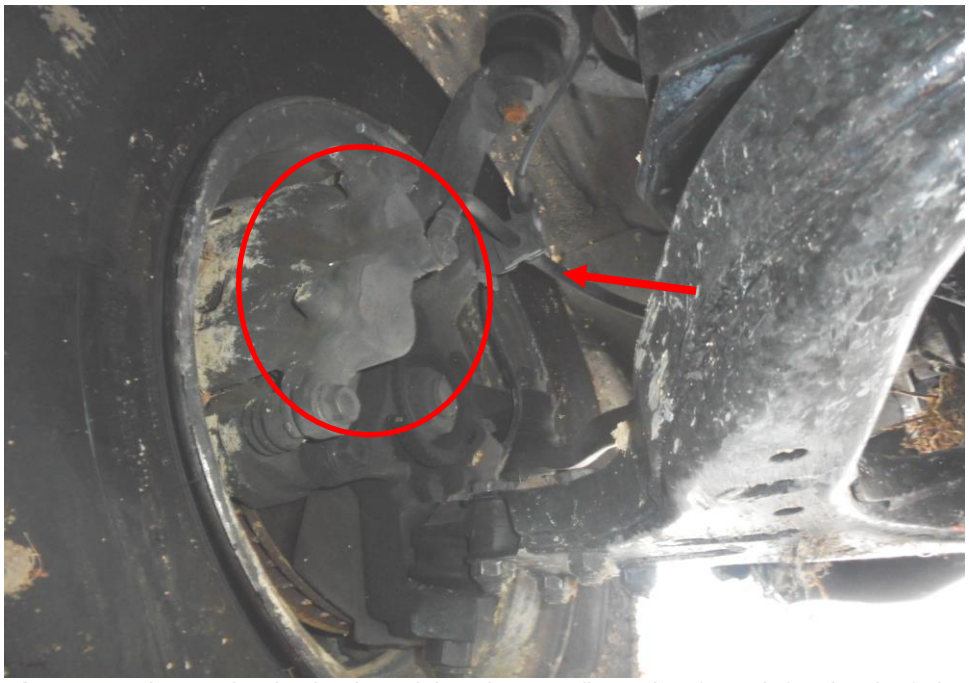

Photo 20 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Van. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage.

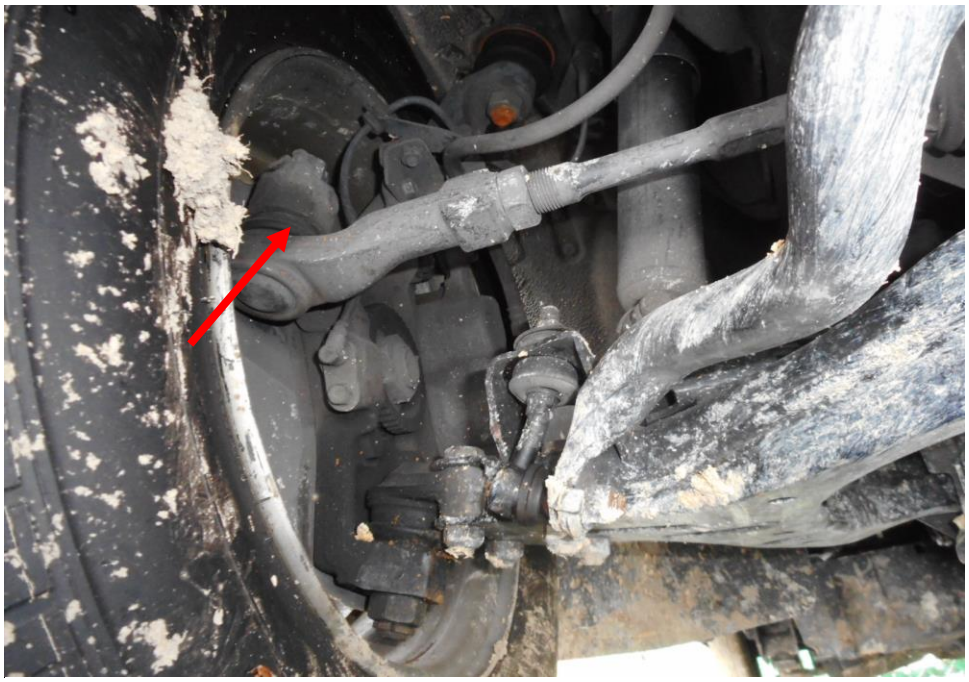

Photo 21 shows the various undercarriage components at the front right wheel of the Motor Van, in particular the steering tie rod (red arrow).The various steering components were all found to be intact, suggesting that the steering system of the Motor Van was likely to be in serviceable condition at 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.

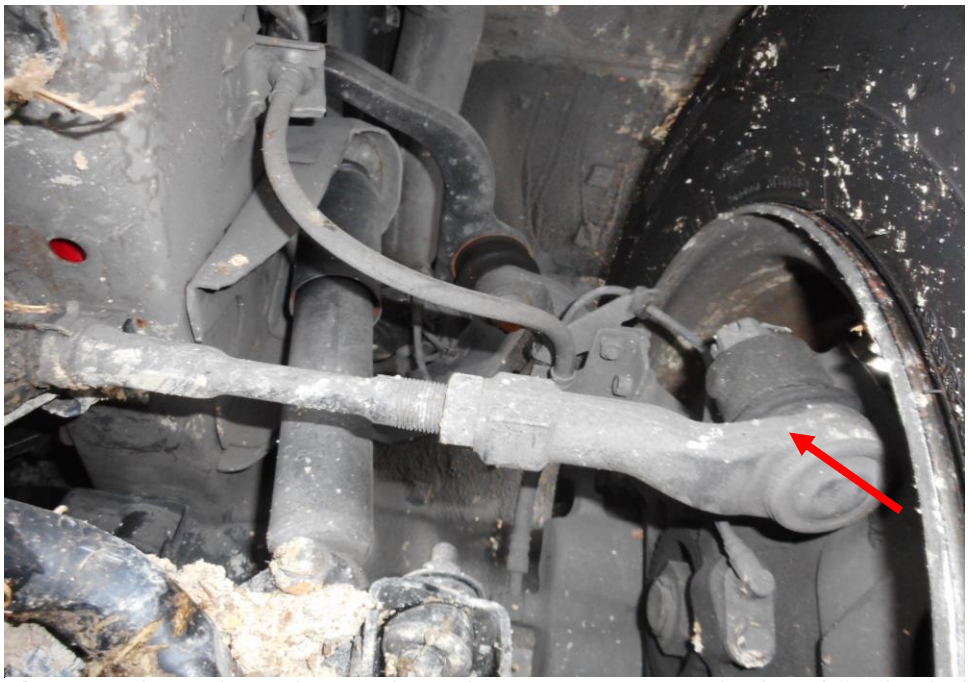

Photo 22 shows the various undercarriage components at the front left wheel of the Motor Van, which had included the steering tie rod (red arrow). The various undercarriage components of the Motor Van were all found to be intact without any visible damage.

13. For this inspection, we observed that the clutch pedal was faulty and to our understanding, the clutch pedal would return to position when not depressed. However for this particular case, we observed that when the clutch pedal was depressed and upon releasing it would get stuck and not return to position, this would suggest that the clutch system was is faulty at the time material time of accident. See photo 23 and 24 below

Photo 23 shows the clutch pedal of the Motor Van, before depressing (red arrow).

Photo 24 shows the clutch pedal of the Motor Van, after depressing (red arrow). The actually workings of the clutch pedal is that it will return to pre-depressing position when it is not depressed, however for this case the clutch pedal remained in depressed position even when there was no pressing motion on it. These suggest a mechanical fault to the clutch system of the Motor Van.

Electronic Safety / Warning Indicators

14. 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 was not able to be started up due to the faulty clutch system. (unable to be started)

Seat Belts

15. The front right, front left, rear right and rear 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

16. The 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 that the engine was not able to be started up due to the faulty clutch system.

Conclusion

17. For this particular case, it appears that its clutch system was faulty as we found evidence(s) to suggest that there was mechanical failure to the Motor Van that may have caused and/or contributed to the accident.

18. Static brake tests was 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.

19. The 3 tyres of 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 3 tyres. The front left tyre was observed to be deflated due to the result of the accident, however all the other 3 tyres were observed to be sufficiently inflated for vehicular operation. All tyres with remaining tread depth of approximately 4.8mm to 8.2mm.

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