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Your Ref: TP/IP/57061/2018 12th February 2019
Our Ref : CI/TPD18019569/Z

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

MECHANICAL INSPECTION REPORT OF MOTOR BUS PA 8420Z.

1. We refer to your request on 26th October 2018 to conduct a physical inspection of a Motor Bus bearing registration number PA 8420Z (herein referred to as "**Motor Bus**"), which was involved in a fatal road traffic accident on 06th October 2018.

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

3. Following the request, we had carried out a physical inspection of the Motor Bus on 26th November 2018 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. We now set out below our observations and comments with respect to this inspection.

General Condition

4. The mileage of the Motor Bus at the time of our inspection was 376189km.

5. The Motor Bus was observed to have sustained minor dent at its front left panel & a dislodged front grille amongst others likely due to the accident.

6. This was likely due to the consistency of the accident's case facts that the Motor Bus was travelling on lane 1 of a 2 lanes road along Bedok Reservoir Road towards Bedok North Avenue 3. While nearing Jalan Lembah Bedok, a pedestrian was seen walking across the road with a walking cane and subsequently was knocked down by the Motor Bus frontal left portion. See photo 1 to 7 below.

Photo 1 shows the mileage of the Motor Bus was 376189km.

Photo 2 shows a general view of the front right body of the Motor Bus at the time of our inspection. The Motor Bus was observed to sustained minor damage at the front left panel & front grille.

Photo 3 shows a close-up view of the dent on the front left panel of the Motor Bus at the time of our inspection. It was observed to have sustained with minor damage likely due to the accident.

Photo 4 shows a close-up view of the dislodged front grille of the Motor Bus at the time of our inspection. It was observed to have sustained with minor damage likely due to the accident.

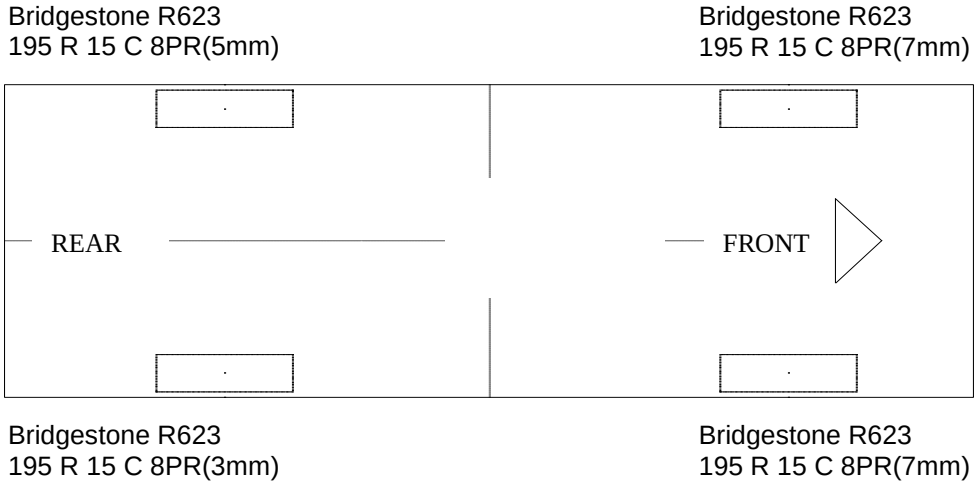
Photo 5 shows a general view of the rear left body of the Motor Bus at the time of our inspection. The Motor Bus was observed to be in good general condition at time of inspection.

Photo 6 shows a general view of the rear right body of the Motor Bus at the time of our inspection. The Motor Bus was observed to be in good general condition at time of inspection.

Photo 7 shows a general view of the rear body of the Motor Bus at the time of our inspection. The Motor Bus was observed to be in good general condition at time of inspection.

Tyres and Wheel Rims

7. The 4 tyres were observed to be in serviceable condition and sufficiently inflated for vehicular operation. We 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 Bus were recorded as follows:-



8. The 4 tyres were observed to be wrapped around standard wheel rims with wheel caps fitted on its outer side. There was no significant damage observed on all of the wheel caps. See photo 8 – 11 below.

Photo 8 shows the condition of the front right tyre of the Motor Bus, which was observed to be in serviceable condition with remaining tread depth of approximately 8mm. The tyres were all observed to be 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.

Photo 9 shows the condition of the front left tyre of the Motor Bus, which was observed to be in serviceable condition with remaining tread depth of approximately 7mm. The tyre, which was wrapped around standard wheel rim, was also observed to be sufficiently inflated for vehicular operation.

Photo 10 shows the condition of the rear left tyre of the Motor Bus, which was observed to be in serviceable condition with remaining tread depth of approximately 5mm. The tyre, which was wrapped around standard wheel rim, was also observed to be sufficiently inflated for vehicular operation. There was also no significant damage found on the 4 wheel rims of the Motor Bus.

Photo 11 shows the condition of the rear right tyre of the Motor Bus, which was observed to be in serviceable condition with remaining tread depth of approximately 3mm. 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 tyre, which was also sufficiently inflated for vehicular operation.

Engine Compartment & Operating Fluids

9. Upon examination of the Motor Bus's engine compartment, we had observed all the parts and components inside the engine compartment to be intact and unaffected by the accident. The brake fluid, 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. 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. Our subsequent checks on the underside of the Motor Bus revealed no fluid stain. Visually, the various undercarriage components of the Motor Bus 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 Bus'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.

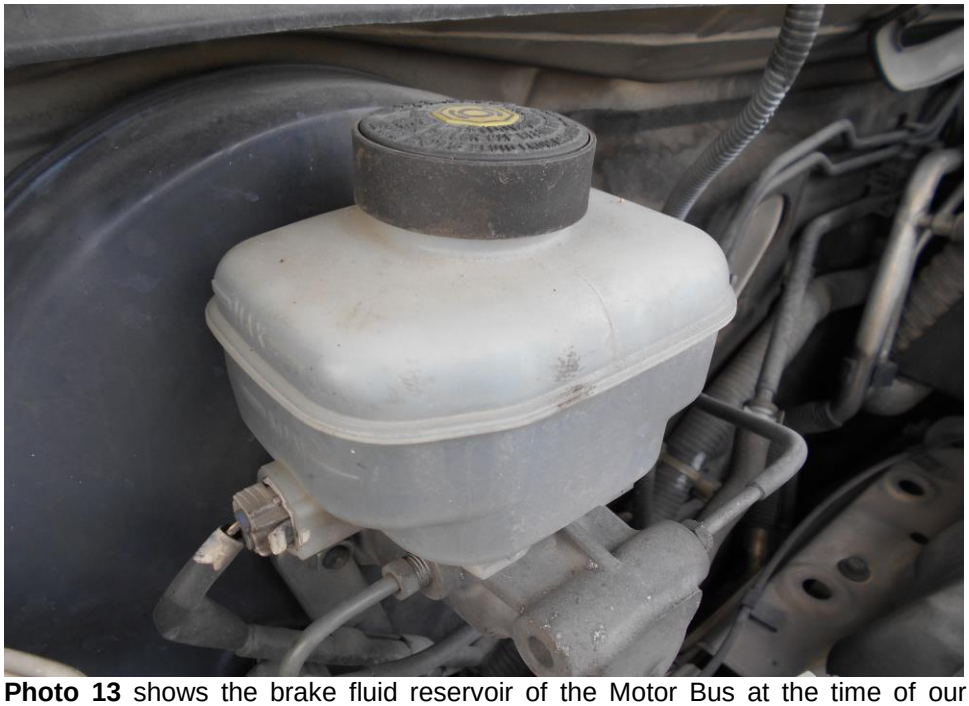


Photo 13 shows the brake fluid reservoir of the Motor Bus at the time of our inspection. The brake fluid was observed to be of sufficient level and without any visible contamination.

Photo 14 shows the engine coolant reservoir of the Motor Bus at the time of our inspection. The engine coolant was observed to be of sufficient level and without any visible contamination.

Photo 15 shows the power steering reservoir of the Motor Bus at the time of our inspection. It was observed to be of sufficient level and without any visible contamination.

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

Steering System & Braking System

12. Static brake tests conducted on the Motor Bus 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 Bus. The braking system of the Motor Bus 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 with no contamination found, 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 Bus also revealed no abnormality to the steering system. We did not experience any abnormal free play and/or other resistance when turning the steering wheel left and right to full lock positions. Our 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 17 - 20 below.

Photo 17 shows the various undercarriage components at the rear left wheel of the Motor Bus, in particular the brake hose (arrowed). We did not observed any leakage of brake fluid at the time of our inspection of the Motor Bus.

Photo 18 shows the brake hose at the front left wheel of the Motor Bus. We did not observe any leakage of brake fluid. Our visual inspection of the various mechanical components of the Motor Bus's braking system revealed all to be intact and without visible damage, indicating that the braking system was likely to be in serviceable condition at the material time of accident.

Photo 19 shows the brake hose (arrowed) at the front right wheel of the Motor Bus. We did not observed any leakage of brake fluid at the time of our inspection of the Motor Bus. Our visual inspection of the various mechanical components of the Motor Van's braking system, including its brake calliper, revealed all to be intact and without visible damage.

Photo 20 shows the various undercarriage components at the rear right wheel of the Motor Bus. The various steering components were all found to be intact, suggesting that the steering system of the Motor Bus 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 at the 4 wheels of the Motor Van.

Electronic Safety / Warning Indicators

14. The Motor Bus's automatic self-test of the functionality of its various electronic operating systems like the Supplemental Restraint System (SRS), engine checked & etc. During cranking of the engine had indicated that these systems were in working condition and without abnormality. This can be established from the warning lights disappearing from the instrument panel after the self-test. However, only the Anti-Locking Braking System (ABS) stayed lighted up amongst others. See photo 21 & 22 below.

Photo 21 shows the warning lights for the various electronic operating systems of the Motor Bus appearing on its instrument panel during the self-test when the engine was cranked.

Photo 22 shows no warning lights illuminated on the instrument panel of the Motor Bus after the engine was cranked. This would suggest that there was no abnormality to the various electronic operating systems of the Motor Car.

Operational Behaviour of the Motor Van

15. A short operational test of the Motor Bus, 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 Bus forward, stopping, before reversing and coming to a stop again.

16. During the operational test, the various transmission gears of the Motor Bus were able to be engaged without any difficulty by stepping on the clutch pedal and manually shifting the gear lever. There were no abnormal sounds heard and/or abnormal behaviour of the Motor Bus's engine system. It was able to move forward and backward normally. The braking system was found to be in working condition as the Motor Bus was able to slow down and come to a complete stop upon depressing of the brake pedal. See photo 23 below.

Photo 23 shows a short operational test of the Motor Bus, the test was conducted by driving the Motor Bus forward, stopping, before reversing and coming to a stop again.

Conclusion

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

18. The observations gathered from our physical inspection of the Motor Bus had indicated no evidence to suggest possible mechanical failure to the Motor Bus that may have contributed to the accident.

19. The 4 tyres of the Motor Bus were also found to be in serviceable condition. 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. The 4 tyres were sufficiently inflated for vehicular operation with remaining tread depth of approximately 3mm to 7mm each.

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