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Our Ref : CI/TPD22010886/P

28th December 2022

General Investigation Team

Traffic Police Department
Singapore Police Force
10 Ubi Avenue 3
Singapore 408865

MECHANICAL INSPECTION REPORT OF MOTOR BUS PC 203B

1. We refer to your request on 31st October 2022 to conduct a physical inspection of a motor bus bearing registration number PC 203B (herein referred to as "**Motor Bus**"), which was involved in a road traffic accident on 30th September 2022.
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 15th November 2022 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

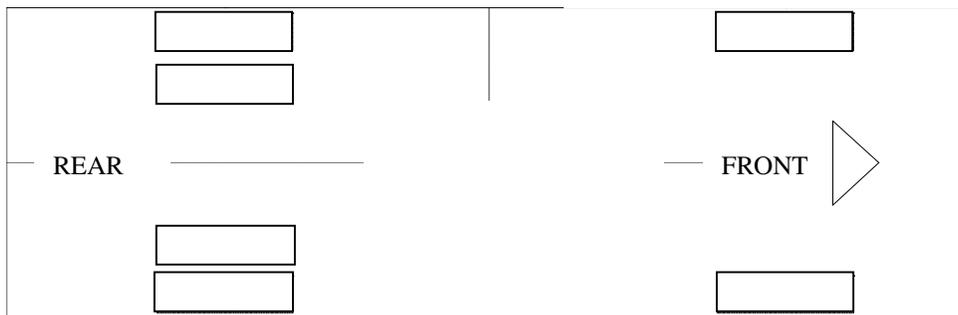
4. The mileage of the Motor Bus at the time of my inspection was not record as the engine of the vehicle was unable to be jumpstarted up despite multiple attempts in jumpstarting it.
5. The Motor Bus was observed to have sustained damages at its front portion. Its front windscreen, front bumper, front body panel and front right headlamp as well as its windscreens was observed to be damaged at time of our inspection.

Tyres and Wheel Rims

6. The condition of the Motor Bus 6 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 6 tyres. The 6 tyres were also observed to be sufficiently inflated for vehicular operation. The tyre brand, tyre size and remaining tread depth of the 6 tyres were recorded as follows:-

Giti 295/80R22.5 (4.8mm)

Bridgestone 295/80R22.5 (14.4mm)



Golden Crown 295/80R22.5 (9.9mm)

Bridgestone 295/80R22.5 (12.9mm)

7. The 6 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 rear portion of the Motor Bus at the time of our inspection. The right portion of the Motor Bus was observed to have been unaffected by the accident.

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Photo 2 shows a general view of the front body of the Motor Bus at the time of our inspection. The Motor Bus was observed to have sustained damages at its front portion. Its front windscreen, front bumper, front body panel and front right headlamp as well as its windscreens was observed to be damaged at time of our inspection.



Photo 3 shows a close up view of the front body of the Motor Bus at the time of our inspection. The Motor Bus was observed to have sustained damages at its front windscreen (circled) as a result of the accident.



Photo 4 shows a close up view of the front body of the Motor Bus at the time of our inspection. The Motor Bus was observed to have sustained damages at its front bumper (circled) as a result of the accident.



Photo 5 shows a close up view of the front body of the Motor Bus at the time of our inspection. The Motor Bus was observed to have sustained damages at its front right headlamp (circled) as a result of the accident.



Photo 6 shows a close up view of the front body of the Motor Bus at the time of our inspection. The Motor Bus was observed to have sustained damages at its front bumper (circled) as a result of the accident.



Photo 7 shows a general view of the right portion of the Motor Bus at the time of our inspection. The right portion of the Motor Bus was observed to have been unaffected by the accident.



Photo 8 shows a general view of the left portion of the Motor Bus at the time of our inspection. The right portion of the Motor Bus was observed to have been unaffected by the accident.



Photo 9 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 12.9mm. The tyre was also observed to be sufficiently inflated for vehicular operation.

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Photo 10 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 9.9mm. The tyre was also observed to be sufficiently inflated for vehicular operation.



Photo 11 shows the condition of the rear right tyres of the Motor Bus, which were observed to be in serviceable condition with remaining tread depth of approximately 4.8mm. The tyres, which were wrapped around standard alloy wheel rims, were also observed to be sufficiently inflated for vehicular operation.



Photo 12 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 14.4mm. The tyre was also observed to be sufficiently inflated for vehicular operation.

Engine Compartment & Operating Fluids

8. Upon examination of the various operational fluid of the Motor Bus, we had observed all the parts and components in the engine compartment to be intact and unaffected by the accident. The engine oil, engine coolant and 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 air in the air-brakes cylinder was unable to be viewed as the engine was not able to be jumpstarted up despite multiple attempts in jumpstarting it.
9. Further examination of the operational fluids revealed no sign(s) or indication(s) of fluid leakage and/or fluid stain within the other various fluids compartment of the Motor Bus.
10. Our subsequent checks on the underside of the Motor Bus visually, the various undercarriage components of the Motor Bus were observed to be intact and without any visible damage. See photo 13 – 17 below.

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Photo 13 shows a general view of the Motor Bus 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 14 shows checks being carried out to the engine coolant of the Motor Bus at the time of my inspection. The engine coolant was observed to be of sufficient level and without any visible contamination.

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Photo 15 shows the engine oil dipstick of the Motor Bus 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 power steering fluid reservoir of the Motor Bus at the time of my inspection. The power steering fluid was observed to be of sufficient level (arrowed) and without any visible contamination.



Photo 17 shows the undercarriage of the Motor Bus, 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 Bus.

Steering System & Braking System

11. The mechanical components of the Motor Bus's steering and braking system were all found to be visually intact and undamaged. Static test on the steering and braking system of the Motor Bus was not conducted as the engine was not started. Our visual examination of the various steering components which had included the rack and pinion, tie rods, tie rod ends, ball joints, brake hoses and air brake cylinder had revealed that these components were all generally intact.

12. The braking system of the Motor Bus was noted to be of a full air-assisted braking system. Briefly, in this system, compressed air is used to press onto the brake shoes (for drum brakes) or onto the brake pads (for disc brakes), through the respective braking mechanism, thus slowing the rotation of the wheels.

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13. Since the engine of the Motor Bus could not be started, I was not able to carry out test(s) on whether there was any leakage of compressed air that could have affected the braking efficiency of the Motor Bus. All the other air pipes, air brake cylinder and connecting valves had all appear to be intact and securely fitted upon my visual examination of these parts. See photo 18 -25 below.



Photo 18 shows the steering box components (arrowed) of the Motor Bus's steering system. The steering system of the Motor Bus shows to be intact and not damaged by the accident.



Photo 19 shows the front right wheel components of the front steering system of the Motor Bus. The various undercarriage components of the Motor Bus were all observed to be intact and without any visible damage. This had included the steering rack and steering ball joints (arrowed) of the Motor Bus, which were observed to be securely attached to the front right wheel.



Photo 20 shows the front left wheel components of the front steering system of the Motor Bus. The various undercarriage components of the Motor Bus were all observed to be intact and without any visible damage. This had included the steering rack and steering ball joints (arrowed) of the Motor Bus, which were observed to be securely attached to the front left wheel.



Photo 21 shows the brake pipe (arrowed) at the front right wheel of the Motor Bus. I did not observe any leakage of brake fluid/air at the time of my inspection of the Motor Bus and the various mechanical components was observed to be intact.



Photo 22 shows the brake pipe (arrowed) at the front left wheel of the Motor Bus. I did not observe any leakage of brake fluid/air at the time of my inspection of the Motor Bus and the various mechanical components was observed to be intact.



Photo 23 shows the brake pipe (arrowed) at the rear right wheel of the Motor Bus. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Bus and the various mechanical components was observed to be intact.



Photo 24 shows the brake pipe (arrowed) at the rear left wheel of the Motor Bus. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Bus and the various mechanical components was observed to be intact.



Photo 25 shows the air brake cylinders (arrowed) at the undercarriage of the Motor Bus. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Bus and the various mechanical components was observed to be intact.

Electronic Safety / Operational indicators

14. The Motor Bus's automatic self-test of the functionality of its various electronic operating systems at the time of our inspection was not able to be recorded as the whole dashboard including the odometer has been damaged by the accident

Conclusion

15. For this particular case, I was unable to determine whether there was any possible mechanical failure to the Motor Bus 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) and/or static test(s) to its engine system, transmission system, steering system, braking system and suspension system.
16. The 6 tyres fitted on the Motor Bus 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 Motor Bus 6 tyres. The 6 tyres of the Motor Bus were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 4.8mm – 14.4mm.

17. My findings were based solely on a static and visual inspection of the Motor Bus. No operational test(s) could be carried out to the Motor Bus as its engine could not be started at the time of my inspection as a result of the accident.



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