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

MECHANICAL INSPECTION REPORT OF MOTOR TAXI SHD 9684B

1. I refer to your request on 12 December 2017 to conduct a physical inspection of a motor taxi bearing registration number SHD 9684B (herein referred to as "**Motor Taxi**"), which was involved in a road traffic accident on 06 December 2017.
2. The objective of the inspection is to determine if there was any possible mechanical failure to the Motor Taxi that may have contributed to the accident.
3. Following the request, I had carried out a physical inspection of the Motor Taxi on 21 December 2017 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 Taxi at the time of my inspection was not recorded due to damage to its ignition system arising from the accident.
5. The Motor Taxi had sustained impact damage that was confined to its frontal body. Its front bumper, front bonnet, front headlamps, front grille, front bumper reinforcement, front support panel and front fenders were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

6. The condition of the Motor Taxi's 4 tyres was observed to be in serviceable condition. The 4 tyres were also 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 were recorded as follows:-



7. The Motor Taxi's 4 tyres were observed to be wrapped around standard wheel rims that were found to be relatively undamaged. See photo 1 – 7 below.



Photo 1 shows a general view of the front left body of the Motor Taxi at the time of my inspection. The Motor Taxi was observed to have sustained impact damage that was confined to its frontal body. Its front bumper, front bonnet, front left headlamp and front left fender were amongst the body parts that were damaged as a result of the accident. The mileage of the Motor Taxi was not recorded due to the extent of damage, which had affected the ignition system of the Motor Taxi.



Photo 2 shows a general view of the front right body of the Motor Taxi at the time of my inspection. The Motor Taxi was observed to have sustained impact damage that was confined to its frontal body. Its front bumper, front bonnet and front right headlamp were amongst the body parts that were damaged as a result of the accident. The mileage of the Motor Taxi was not recorded due to the extent of damage, which had affected the ignition system of the Motor Taxi.



Photo 3 shows a general view of the Motor Taxi's rear right body at the time of my inspection. The rear body of the Motor Taxi was observed to be unaffected.



Photo 4 shows the condition of the front left tyre of the Motor Taxi, which was observed to be in serviceable condition with remaining tread depth of approximately 6mm. The tyre, which was wrapped around standard 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 tyre.



Photo 5 shows the condition of the front right tyre of the Motor Taxi, which was observed to be in serviceable condition with remaining tread depth of approximately 6mm. The tyre, which was wrapped around standard wheel rim, was also observed to be sufficiently inflated for vehicular operation.



Photo 6 shows the condition of the rear left tyre of the Motor Taxi, which was observed to be in serviceable condition with remaining tread depth of approximately 6mm. The tyre, which was wrapped around standard wheel rim, was also observed to be sufficiently inflated for vehicular operation. The 4 tyres of the Motor Taxi were wrapped around standard wheel rims that were without any damage.



Photo 7 shows the condition of the rear right tyre of the Motor Taxi, which was observed to be in serviceable condition with remaining tread depth of approximately 6mm. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the tyre.

Engine Compartment & Operating Fluids

8. Upon examination of the Motor Taxi's engine compartment, I had observed parts that were mainly towards the front of the engine compartment pushed inwards as a result of the impact force onto the frontal body of the Motor Taxi. The brake fluid and engine oil were found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids. The power steering fluid and engine coolant were however observed to have leaked from a damaged hose/pipe and radiator respectively. Both of which were a consequence of the accident.
9. My checks on the underside of the Motor Taxi revealed fresh fluid stains towards the front of the Motor Taxi. This was due to the leakage of power steering fluid and engine coolant. Visually, the undercarriage components of the Motor Taxi were all observed to be intact and without any visible damage. See photo 8 – 12 below.



Photo 8 shows a general view of the Motor Taxi's engine compartment. Parts that were mainly towards the front of the engine compartment were pushed inwards as a result of the impact force onto the frontal body of the Motor Taxi. The front support panel, front bumper reinforcement, cooling fan, air condenser and radiator were all observed to have been damaged.



Photo 9 shows the brake fluid reservoir of the Motor Taxi at the time of my inspection. I had found the brake fluid to be of sufficient level for operating purposes, and without any visible contamination.



Photo 10 shows the engine coolant reservoir tank of the Motor Taxi at the time of my inspection. The engine coolant was observed to be of insufficient level for operating purposes. This was due to engine coolant leakage from a damaged radiator.



Photo 11 shows the engine oil dip stick of the Motor Taxi at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

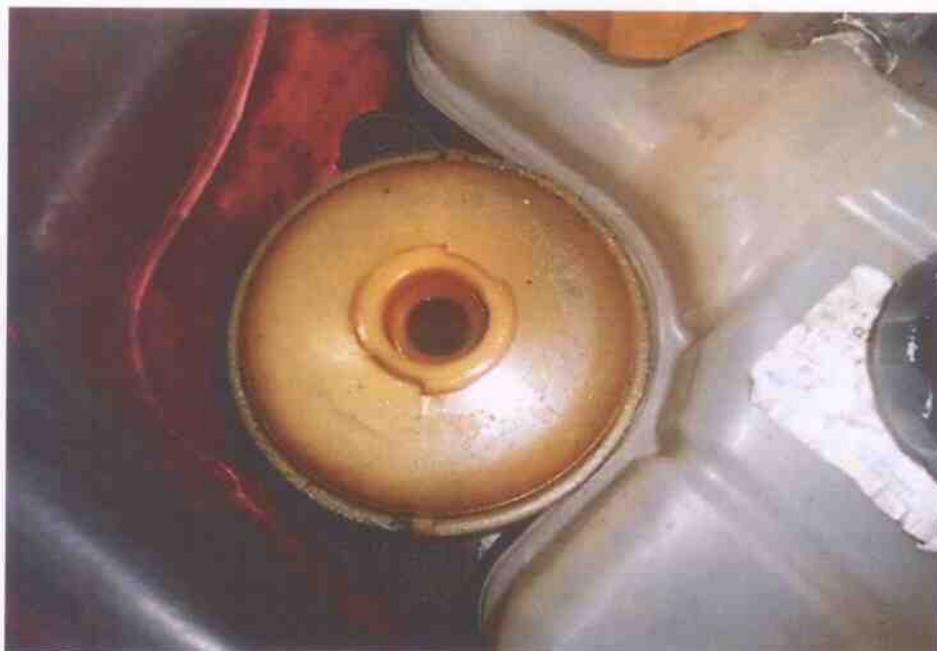


Photo 12 shows the power steering fluid reservoir of the Motor Taxi at the time of my inspection. The power steering fluid was observed to be of insufficient level for operating purposes. This was due to leakage from a damaged hose/pipe as a result of the accident.

Steering System & Braking System

10. For this case, static tests to the Motor Taxi's steering system and braking system were not able to be conducted (engine unable to be started and lack of power steering fluid from leakage). I was however able to carry out visual examination of the various mechanical components of the steering system and braking system.
11. The steering wheel, steering column, steering ball joints, steering rack and pinion were all observed to be in good general condition and securely attached to the front left wheel and front right wheel, suggesting that the Motor Taxi's steering system was likely to be in serviceable condition. See photo 13 & 14 below.



Photo 13 shows the various undercarriage components at the front left wheel of the Motor Taxi, in particular the steering tie rod (red arrow) and front left drive shaft (yellow arrow). The various steering components were all found to be intact, suggesting that the steering system of the Motor Taxi was likely to be in serviceable condition at the material time of accident.

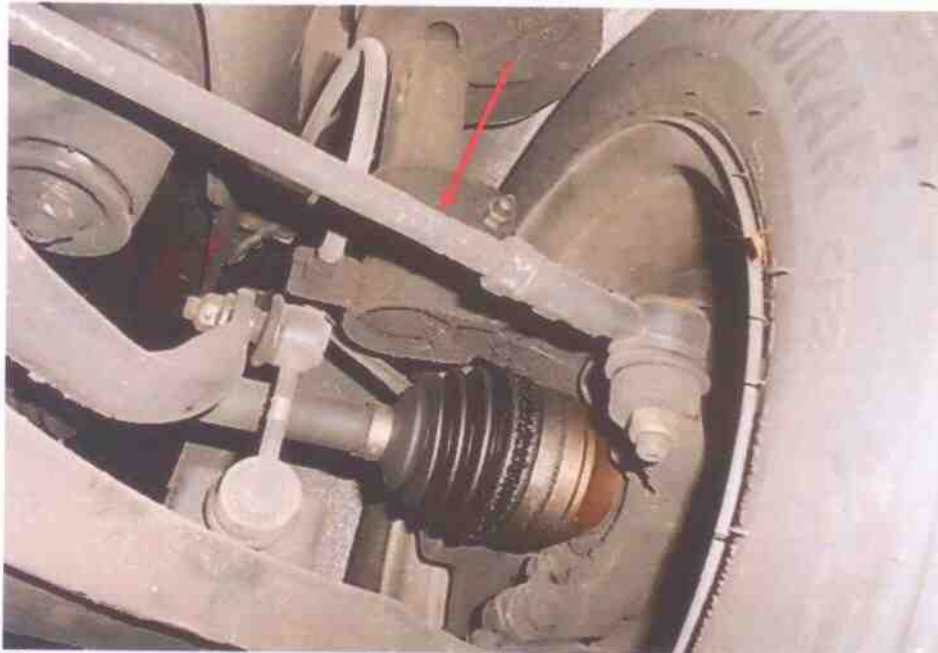


Photo 14 shows the various undercarriage components at the front right wheel of the Motor Taxi, in particular the steering tie rod (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Taxi was likely to be in serviceable condition at the material time of accident.

12. With regard to the braking system, I had found parts like the brake booster, brake master pump, brake calipers and brake pipes/hoses etc to be in good general condition and securely fitted. In general, although static tests to the braking system could not be conducted, my visual inspection of the mechanical components of the Motor Taxi's braking system had appear to suggest that its braking system was in serviceable condition at the material time of accident. This was also taking into consideration that the brake fluid was of sufficient level, and that there was no sign(s) of brake fluid leakage along the brake hoses and brake pipe. See photo 15 & 16 below

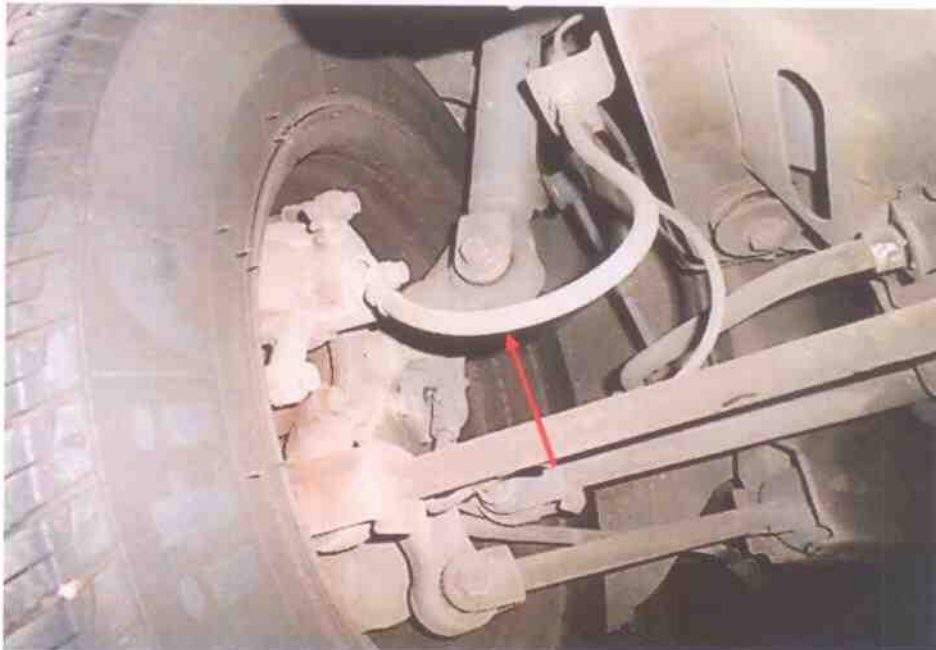


Photo 15 shows the various undercarriage components at the rear left wheel of the Motor Taxi, in particular the brake hose (arrowed). I did not observe any leakage of brake fluid at the 4 wheels of the Motor Taxi. My visual inspection of the various mechanical components of the Motor Taxi's braking system 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.

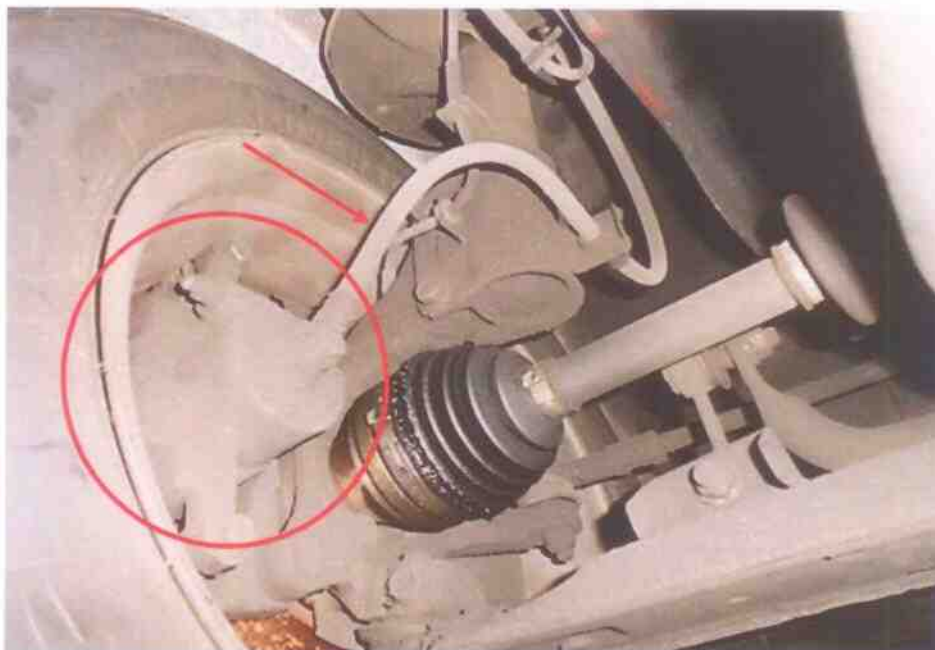


Photo 16 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Taxi. There was no brake fluid leak observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage.

Electronic Safety / Warning Indicators

13. The Motor Taxi's automatic self-test of the functionality of its various operating systems like the Anti-Brake Lock System (ABS) and Supplemental Restraint System (SRS) during cranking of the engine was not able to be initiated as the engine of the Motor Taxi could not be started due to damage to its ignition system arising from the accident.
14. The Supplemental Restraint System (SRS) of the Motor Taxi was however likely to be in normal operating condition at the material time. The evidence of the deployed driver's air bag indicate that the impact sensors and control module of the Motor Taxi's SRS were all in serviceable condition at the material time of accident.

Operational Behaviour of the Motor Taxi

15. Operational test to primarily determine whether there was any abnormality to the engine system, transmission system and braking system of the Motor Taxi could not be conducted given the extent of damage that it had sustained (engine could not be started and engine cooling system affected).

Conclusion

16. At the time of my inspection of the Motor Taxi, its steering system and braking system could not be tested as the Motor Taxi's engine could not be started due to the extent of damage that it had sustained from the accident. However basing on my observations, it would appear that the steering system and braking system of the Motor Taxi were in serviceable condition. In forming my opinion, I had considered that all the various mechanical components were found to be intact and undamaged and that the brake fluid was of sufficient level for operating purposes.
17. In general, the observation gathered from my physical inspection of the Motor Taxi had indicated no evidence to suggest possible mechanical failure to the Motor Taxi that may have contributed to the accident.

18. The 4 tyres fitted on the Motor Taxi 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 6mm.



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