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Our Ref : CI/TPD17024644/Z

29th December 2017

General Investigation Team D

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

MECHANICAL INSPECTION REPORT OF MOTOR TAXI SHA 9435U

1. We refer to your request on 20th December 2017 to conduct a physical inspection of a motor taxi bearing registration number SHA 9435U (herein referred to as "**Motor Taxi**"), which was involved in a fatal road traffic accident on 02nd December 2017.
2. The purpose of this inspection is to primarily determine if there was any possible mechanical failure to the Motor Taxi that may have contributed to the accident.
3. Following the request, we carried out a physical inspection of the Motor Taxi on 29th December 2017 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 Taxi at the time of our inspection was not recorded as its ignition system was damaged by the collision.
5. The Motor Taxi had sustained extensive impact damage at its frontal portion. The impact force was significant, causing the various parts and components inside the engine compartment to be damaged. This had included its engine assembly and transmission assembly, which were both amongst the multiple parts and components inside the engine compartment that were pushed inwards, towards the rear of the Motor Taxi.

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6. Other body parts that were damaged had included the front bonnet, front left & right fenders, left & right headlamp, radiator and re-inforcement bar amongst others. The interior compartment was not affected badly, except for the driver's airbag was activated likely due to the accident's impact.



Photo 1 shows a general view of the frontal portion of the Motor Taxi at the time of our inspection. The Motor Taxi was observed to have sustained extensive impact damage at its frontal portion. The impact force was significant, causing the various parts and components inside the engine compartment to be buckled inwards.

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Photo 2 shows a general view of the front right portion of the Motor Taxi at the time of our inspection. The Motor Taxi was observed to have sustained extensive impact damage at its frontal portion.



Photo 3 shows a general view of the front left portion of the Motor Taxi at the time of our inspection. The Motor Taxi was observed to have sustained extensive impact damage at its frontal portion.



Photo 4 shows a closer view of the damage at the frontal portion of the Motor Taxi. The impact force was significant, causing the various parts and components inside the engine compartment to be pushed inwards, towards the rear of the Motor Car.



Photo 5 shows a closer view of the damage at the frontal right portion of the Motor Taxi. The impact force was significant, causing the various parts and components inside the engine compartment to be pushed inwards, towards the rear of the Motor Taxi.



Photo 6 shows a closer view of the damage at the frontal left portion of the Motor Taxi. The impact force was significant, causing the various parts and components inside the engine compartment to be pushed inwards, towards the rear of the Motor Taxi.



Photo 7 shows a closer view of the damage at the right frontal portion of the Motor Taxi. The impact force was significant, causing the right hand door to be partially stuck, unable to be open smoothly.

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Photo 8 shows a closer view of the interior portion of the Motor Taxi. The impact force was significant, causing the driver's seat air bag activated.



Photo 9 shows a general view of the rear left portion of the Motor Taxi at the time of our inspection. The rear portion was observed to be relatively unaffected by the accident.

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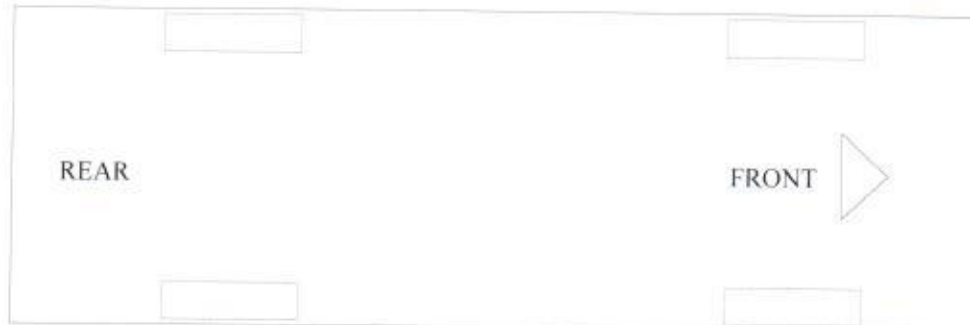
Photo 10 shows a general view of the rear right portion of the Motor Taxi at the time of our inspection. The rear portion was observed to be relatively unaffected by the accident.

Tyres and Wheel Rims

7. The condition of the Motor Taxi's 4 tyres was observed to be in serviceable condition. 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 4 tyres were also observed to be sufficiently inflated for vehicular operation.
8. The 4 tyres were observed to be wrapped around steel wheel rims that were found to be without any significant damage apart for some relatively minor kerb grazing type of damage on the rim covers. The tyre brand, tyre size and remaining tread depth of the 4 tyres were recorded as follows:- See photo 11 – 14 below.

Hankook Optimo H724 205/60R16 (6mm)

Hankook Optimo H724 205/60R16 (7mm)



Hankook Optimo H724 205/60R16 (6mm)

Hankook Optimo H724 205/60R16 (7mm)



Photo 11 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 7mm. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of this tyre.

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Photo 12 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 7mm. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of this tyre, which was also sufficiently inflated for vehicular operation.



Photo 13 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 also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of this tyre.



Photo 14 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. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of this tyre.

Engine Compartment & Operating Fluids

9. The engine compartment of the Motor Taxi was severely affected by the collision. Almost all the parts and components inside the engine compartment were badly damaged. Parts like the radiator, air intake system, fuel rails, exhaust manifold, fuse box and control modules amongst others were found to be damaged.
10. Leakage of the various operating fluids like the engine fluid, engine coolant, power steering fluid and brake fluid was also noted. Given the extent of damages to the engine compartment, the leakages were likely due to the accident. The engine undercarriage was however observed to be covered with fluid, suggesting leakage of fluid. There was no accumulation of dust and/or dirt particles on the engine housing where the fluid stains had formed. This would indicate that the fluid leakage was a fresh leak and likely to be a result of the accident. We were therefore unable to comment whether these operating fluids were of sufficient level and without contamination for vehicular operation prior to the accident.



Photo 15 shows the close up view of the radiator of the Motor Taxi. Dented radiator (Red arrowed) & broken parts (Circled) was observed at time of our inspection.



Photo 16 shows the close up view of the re-inforcement bar, air intake system, ignition system, transmission system & cooling system that was observed to be damaged likely due to the accident impact.



Photo 17 shows the close up view of the re-inforcement bar, air intake system, ignition system, transmission system & cooling system that was observed to be damaged likely due to the accident impact.

Steering System & Braking System

11. We were not able to conduct any tests on the steering system and braking system of the Motor Taxi. This was due to leakage of power steering fluid and brake fluid, both of which were a result of the accident, as well as damages to several mechanical components that links to the steering system and braking system. See photo 18 - 23 below.

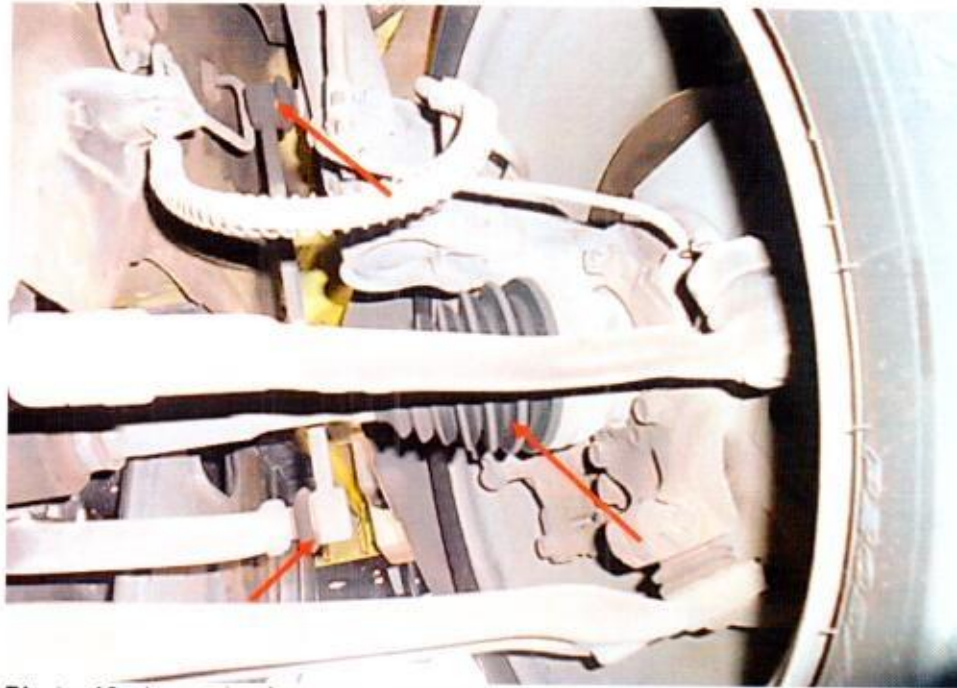


Photo 18 shows the front right steering tie rod & drive shaft of the Motor Taxi. There was no visible fluid leakage around the area. However, we were not able to conduct any tests on the steering system of the Motor Taxi due to the damages to the engine components that links to the steering system.

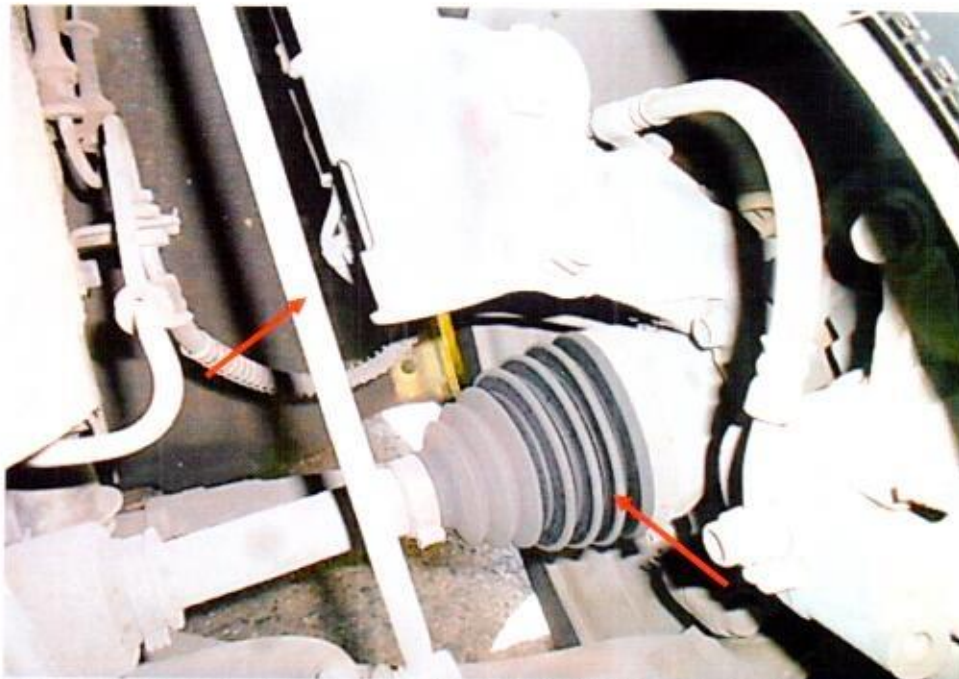


Photo 19 shows the front left steering tie rod & drive shaft of the Motor Taxi. There was no visible fluid leakage around the area. However, we were not able to conduct any tests on the steering system of the Motor Taxi due to the damages to the engine components that links to the steering system.

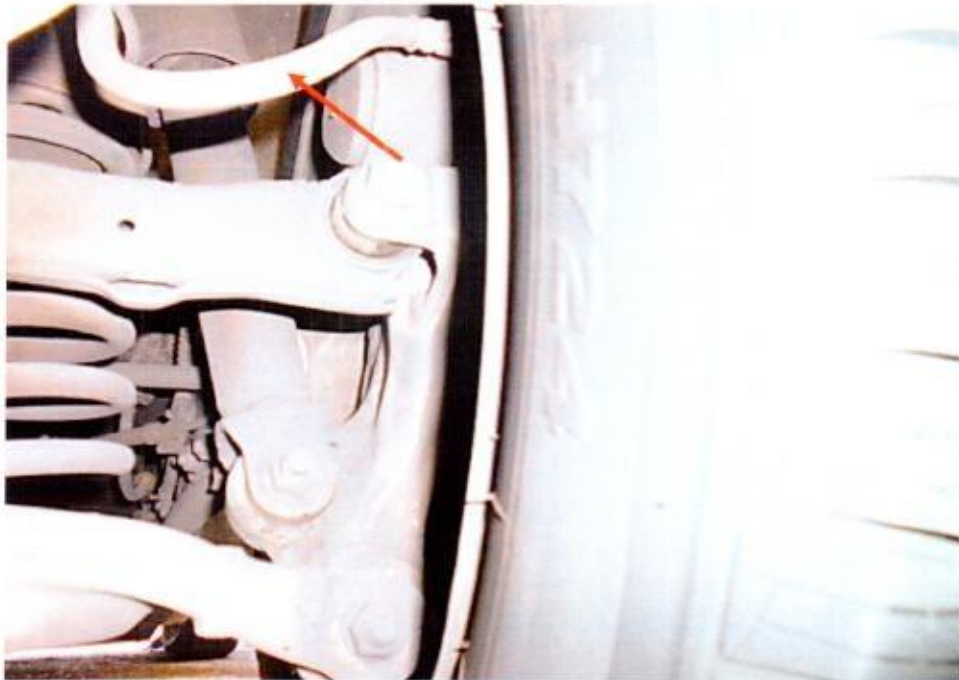


Photo 20 shows the braking components at the rear right wheel of the Motor Taxi. We did not observe any leakage of brake fluid at the time of our inspection of the Motor Taxi.

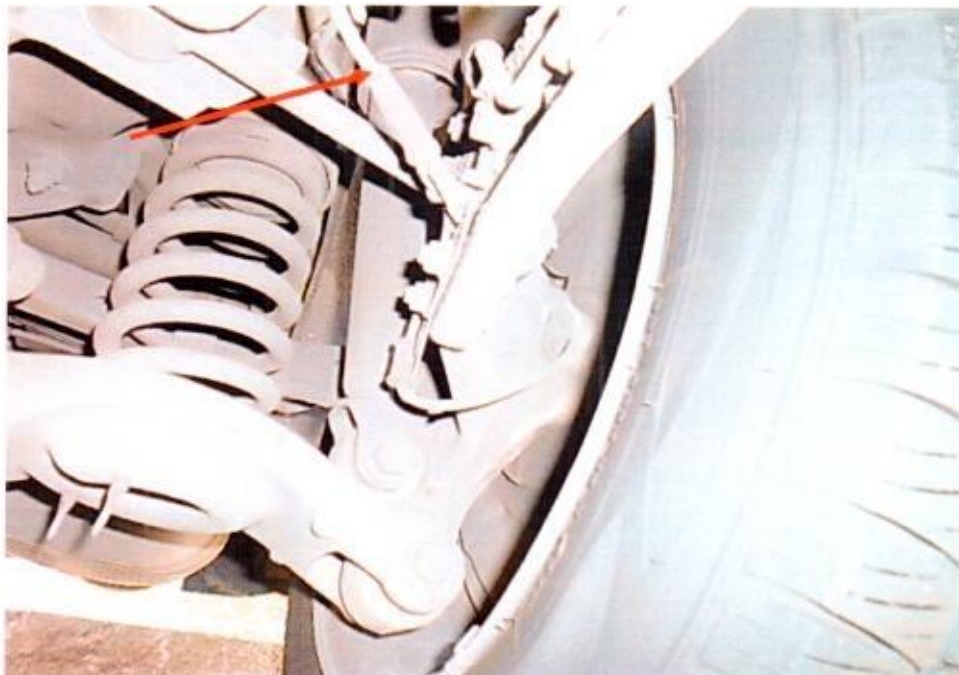


Photo 21 shows the braking components at the rear left wheel of the Motor Taxi. We did not observe any leakage of brake fluid at the time of our inspection of the Motor Taxi.

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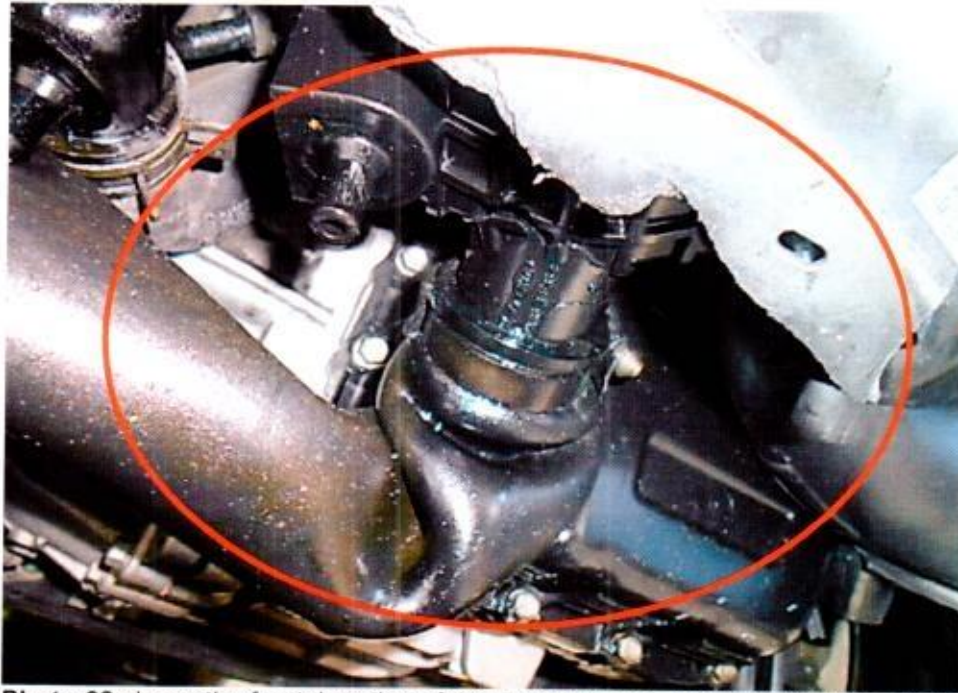


Photo 22 shows the frontal portion of the undercarriage components of the Motor Taxi. We observe signs of fluid leakage at the time of our inspection of the Motor Taxi.



Photo 23 shows the frontal portion of the undercarriage components of the Motor Taxi. We observe signs of fluid leakage at the time of our inspection of the Motor Taxi.

Electronic Safety / Warning Indicators

12. 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 due to the damage of the ignition system and engine system of the Motor Taxi.
13. The Supplemental Restraint System (SRS) of the Motor Taxi was however likely to be in normal operating condition at the material time of the accident. The evidence of the deployed driver's airbag indicates 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 Car

14. No operational test to primarily determine whether there was any abnormality to the engine system, transmission system and braking system of the Motor Taxi could be conducted given the extent of damage that it had sustained.

Conclusion

15. For this particular case, we were unable to determine whether there was any possible mechanical failure to the Motor Taxi that may have contributed to the accident. This was mainly due to the extent of damage that it had sustained. Its engine system, transmission system, steering system and braking system were all damaged as a result of the accident's impact. Hence, the 'Auto Hold' function was unable to be tested due to the damages.
16. The 4 tyres of 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 6 & 7mm each.

17. Our findings were based solely on a static and visual inspection of the Motor Taxi. No operational test could be carried out to the Motor Taxi given the extent of damage that it had sustained as a result of the accident.



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