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Your Ref: TP/IP/46761/2018
Our Ref : CI/TPD18018440/Z

09th January 2019

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SKC 3331D

1. We refer to your request on 27th September 2018 to conduct a physical inspection of a motor car bearing registration number SKC 3331D (herein referred to as "**Motor Car**"), which was involved in a fatal road traffic accident on 17th August 2018.
2. The purpose of this inspection is to primarily determine if there was any possible mechanical failure to the Motor Car that may have contributed to the accident.
3. Following the request, we carried out a physical inspection of the Motor Car on 26th October 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 Car at the time of our inspection was not recorded as its ignition system was severely damaged by the collision.
5. The Motor Car had sustained extensive impact damage at its frontal portion, left, right & rear 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 Car.

6. Other body parts that were damaged had included the front windshield, front bonnet, front bumper and rear bumper amongst others. The interior compartment was also affected badly; the driver & passenger's airbag was also activated due to the extensive impact at time of the accident. See photo 1 to 13 below.



Photo 1 shows a general view of the frontal portion of the Motor Car at the time of our inspection. The Motor Car 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 damaged.



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



Photo 4 shows a closer view of the damage at the frontal portion of the Motor Car's engine. The impact force was significant, causing the various parts and components inside the engine compartment to be dislodged from its original installation.



Photo 5 shows a closer view of the damage at the frontal right portion of the Motor Car. The impact force was significant, causing the various parts and components inside the engine compartment to be dislodged from its original installation.



Photo 6 shows a closer view of the damage at the frontal left portion of the Motor Car. The impact force was significant, causing the various parts and components inside the engine compartment to be dislodged from its original installation.



Photo 7 shows a closer view of the damage at the frontal portion of the Motor Car. 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 8 shows a closer view of the damage at the driver's seat of the Motor Car. The impact force was significant, causing the various parts and components inside the interior compartment to be pushed inwards, including its ignition system.



Photo 9 shows a closer view of the left front passenger seat of the Motor Car. 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 10 shows a closer view of the damage at the windscreen area of the Motor Car. The impact force was significant, causing the windscreen to sustain a shattering cracked.



Photo 11 shows a closer view of the damages at the interior portion of the Motor Car due to the extensive impact collision at time of the accident.



Photo 12 shows a general view of the rear left portion of the Motor Car at the time of our inspection. The rear portion was observed to be relatively sustained with minor impact by the accident that caused the rear bumper to be dislodged.



Photo 13 shows a general view of the rear right portion of the Motor Car at the time of our inspection. The rear portion was observed to be relatively sustained with minor damages.

Tyres and Wheel Rims

7. The condition of the Motor Car'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. The tyre brand, tyre size and remaining tread depth of the 4 tyres were recorded as follows:-



8. The 4 tyres were observed to be wrapped around alloy wheel rims that were found to be without any significant damage except for some marks of grazing nature on the outer spokes of the wheel rims, which are commonly associated to grazing against a road kerb. See photo 14 – 17 below.



Photo 14 shows the condition of the front right portion of the Motor Car, which 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 with remaining tread depth of approximately at 4mm.



Photo 15 shows the condition of the front left tyre of the Motor Car, which was observed to be in serviceable condition. The 4 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately at 4mm.



Photo 16 shows the condition of the rear left tyre of the Motor Car, which was observed to be in serviceable condition. The 4 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately at 4mm.



Photo 17 shows the condition of the rear right tyre of the Motor Car, which was observed to be in serviceable condition. The 4 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately at 4mm.

Engine Compartment & Operating Fluids

9. The engine compartment of the Motor Car 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 oil, 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. See photo 18 to 21 below.



Photo 18 shows the semi-close up view of the dislodged engine of the Motor Car. Signs of fluid leakage stains were observed on the ground due to the accident's impact. Fluids such as brake fluid, steering fluid, engine fluid & coolant fluid were found to be leaking as a result of the accident.



Photo 19 shows the close up view of the radiator's tank that was observed to be damaged likely due to the accident impact. Hence cause leakage to the coolant fluid.



Photo 20 shows the close up view of the empty coolant fluid reservoir due to the accident impact.



Photo 21 shows the close up view of the insufficient engine fluid due to the leakage as a result of the accident.

Steering System & Braking System

11. We were not able to conduct any tests on the steering system and braking system of the Motor Car. This was due to leakage of power steering fluid and brake fluid, both of which were a result of the accident, as well as damage to several mechanical components of the steering system and braking system. See photo 22 to 26 below.



Photo 22 shows a close up view on the front left drive shaft of the Motor Car. We were not able to conduct any tests on the steering system of the Motor Car due to the damage to these components.

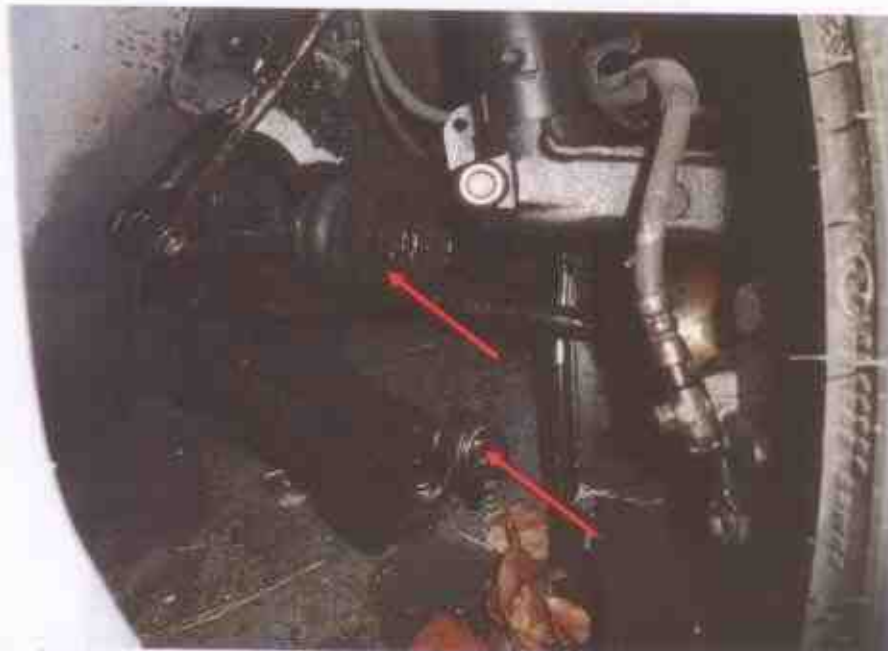


Photo 23 shows the damaged on the front right drive shaft of the Motor Car. We were not able to conduct any tests on the steering system of the Motor Car due to the damage to this components, as well as leakage of fluids.



Photo 24 shows the braking & steering components at the rear right wheel of the Motor Car. We did not observe any leakage of brake fluid at the time of our inspection of the Motor Car.



Photo 25 shows the braking & steering components at the rear left wheel of the Motor Car. We did not observe any leakage of brake fluid at the time of our inspection of the Motor Car.



Photo 26 shows the damaged brake booster of the Motor Car. We observe signs of brake fluid leakage at the time of our inspection of the Motor Car.

Electronic Safety / Warning Indicators

12. The Motor Car's automatic self-test of the functionality of its various operating systems like the Anti-Brake Lock System (ABS) and Supplemental Restraint System (SRS) was not able to be initiated due to major mechanical damages which includes its ignition system and engine system of the Motor Car.
13. The Supplemental Restraint System (SRS) of the Motor Car was however likely to be in normal operating condition at the material time of the accident. The evidence of the deployed the driver's & front passenger's airbag indicates that the impact sensors and control module of the Motor Car's SRS were all in serviceable condition at the material time of accident. See photo 27 & 28 below.



Photo 27 shows the Supplemental Restraint System (SRS) of the Motor Car was however likely to be in normal operating condition at the material time of the accident. The evidence of the deployed front driver's airbag indicates that the impact sensors and control module of the Motor Car's SRS were all in serviceable condition at the material time of accident.



Photo 28 shows the Supplemental Restraint System (SRS) of the Motor Car was however likely to be in normal operating condition at the material time of the accident. The evidence of the deployed front passenger's airbag indicates that the impact sensors and control module of the Motor Car'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 Car could not 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 Car 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.
16. The condition of the Motor Car'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 with remaining tread depth of approximately 4mm each.
17. Our findings were based solely on a static and visual inspection of the Motor Car. No operational test could be carried out to the Motor Car given the extent of damage that it had sustained as a result of the accident.

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