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Your Ref: TP/IP/15449/2020 3rd June 2020
Our Ref : CI/TPD20004876/P

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SMM 4122H

1. I refer to your request on 2nd April 2020 to conduct a physical inspection of a motor car bearing registration number SMM 4122H (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 21st March 2020.

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, I had carried out a physical inspection of the Motor Car on 2nd June 2020 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 Car at the time of my inspection was not recorded as its ignition system was affected by the collision.

5. The Motor Car had sustained extensive major impact damage at its left portion, body parts around the whole Motor Car had sustained damage as well. The front bonnet and rear boot and roof were also observed to have been damaged as a result of the accident.

6. Parts towards the front of the engine compartment were also damaged. This had included, its front bonnet, intake pipe and its ignition system, as a result of the accident. See photo 1 – 8 below.

Photo 1 shows a general view of the front portion of the Motor Car at the time of my inspection. The Motor Car was also observed to have sustained extensive major impact damage at its left portion, body parts around the whole Motor Car had sustained damage as well. The front bonnet and rear boot and roof were also observed to have been damaged as a result of the accident.

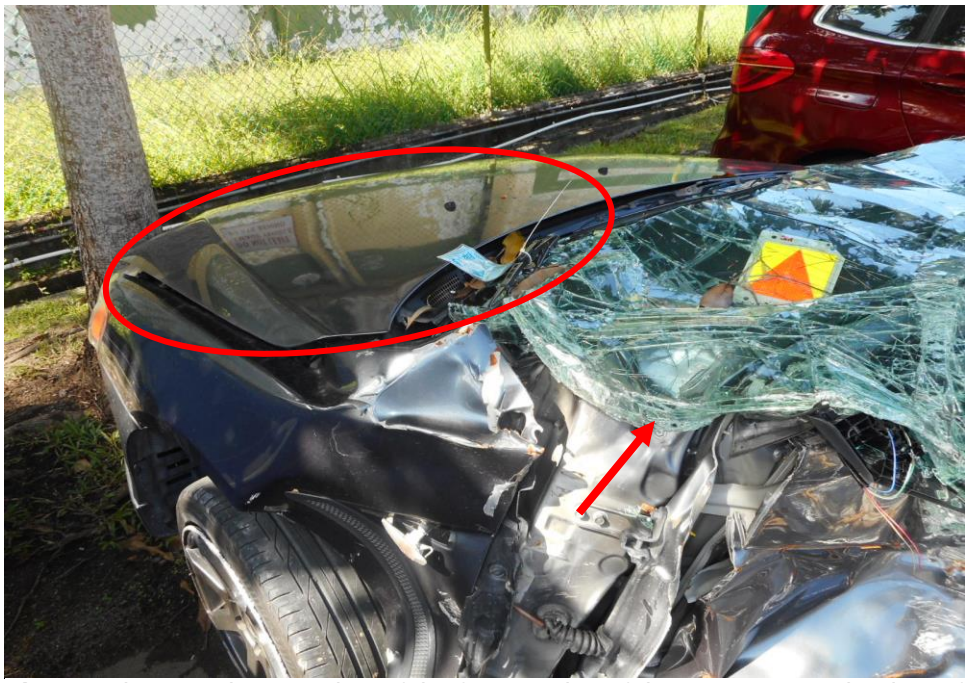

Photo 2 shows a close up view of the front portion of the Motor Car at the time of my inspection. The front bonnet (circled) and front windscreen (arrowed) was observed to have been damaged as a result of the accident.

Photo 3 shows a close up view of the roof portion of the Motor Car at the time of my inspection. The roof of the Motor Car was observed to have been damaged as a result of the induced impact from the accident (circled)

Photo 4 shows a general view of the left portion of the Motor Car at the time of my inspection. The left side of the Motor Car had sustained extensive impact, its doors and the whole body panel structure was observed to have been damaged as a result of the accident.

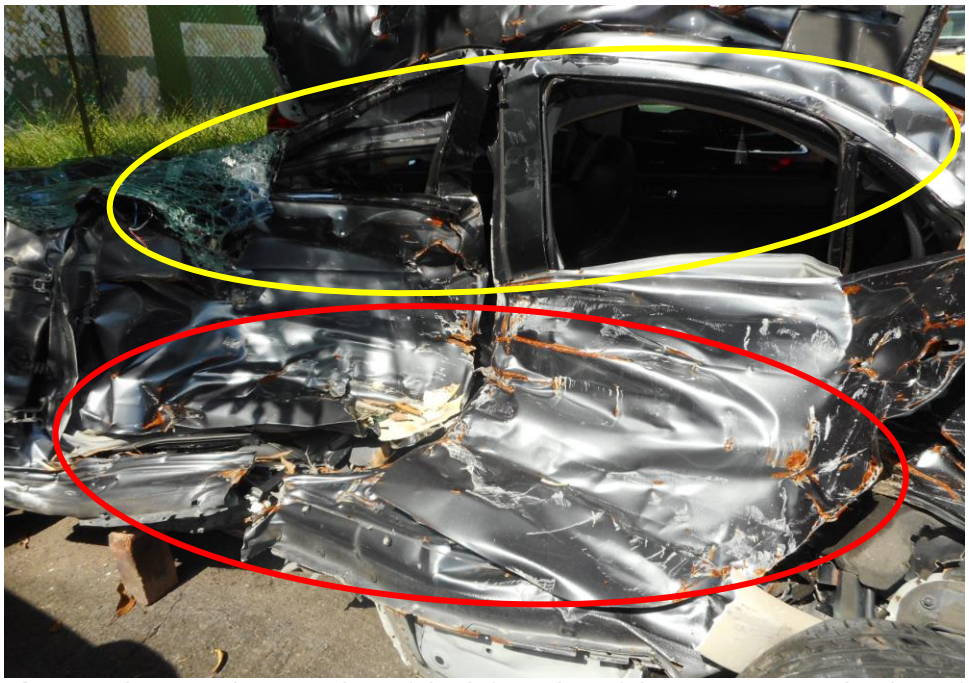

Photo 5 shows a close up view of the left portion of the Motor Car at the time of my inspection. The left side of the Motor Car had sustained extensive impact, it's both left doors (red circle), whole body panel structure and both left windscreens (yellow circle) was observed to have been damaged as a result of the accident.

Photo 6 shows a general view of the right portion of the Motor Car at the time of my inspection. The right body panel of the Motor Car was relatively intact with minor dents on the panels as a result of the accident.

Photo 7 shows a general view of the rear portion of the Motor Car at the time of my inspection. The rear portion boot (circled) and bumper (arrowed) of the Motor Car was observed to have been damaged as well from the induced impact by the accident.

Photo 8 shows a general view of the Motor Car's interior compartment from the driver's seat. The driver's cabin had sustained damaged as a result of the accident.

Tyres and Wheel Rims

7. The front right and rear left wheel was inspected to be deflated due to the damage to the rims caused by the accident however; condition of the Motor car's 4 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 4 tyres. The tyre brand, tyre size and remaining tread depth of the 4 tyres were recorded as follows:-

8. All 4 tyres of the Motor Car were wrapped around alloy wheel rims. The front right and rear left wheel rim found to be dented due to the accident however; the front left and rear right wheel rim were observed to be in good condition. See photo 9 – 12 below.

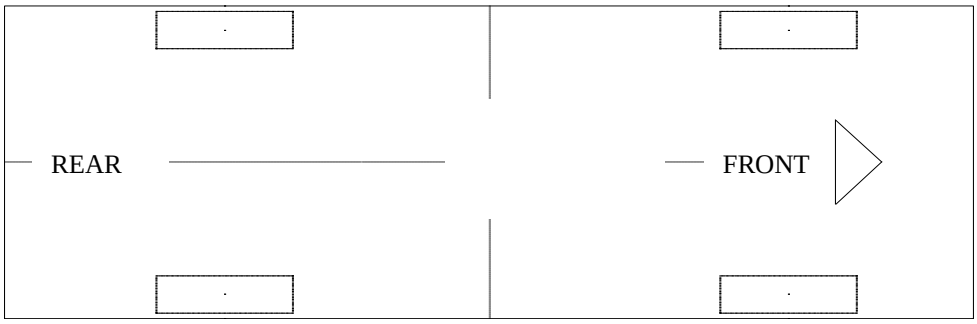

Photo 9 shows the condition of the front right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.3mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the Motor Car's 4 tyres, however observed to be deflated due to damage to the rims (arrowed).

Photo 10 shows the condition of the rear right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.6mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 11 shows the condition of the rear left tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.5mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s), however observed to be deflated due to damage to the rims (arrowed).

Photo 12 shows the condition of the front left tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.5mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Engine Compartment & Operating Fluids

9. Upon examination of the Motor Car's engine compartment, I had observed the intake pipe and ignition system to be damaged due to the induced impact from the accident. However all the other parts and components inside the engine compartment were observed to be intact. The brake fluid, engine oil 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, there was no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the engine compartment of the Motor Car.

11. My subsequent checks on the underside of the Motor Car also revealed no fluid stain. Visually, the various undercarriage components of the Motor Car were all observed to be intact and without any visible damage. See photo 13 – 18 below.

Photo 13 shows a general view of the Motor Car's engine compartment, which was accessed by lifting the front cabin of the Motor Car. The various parts and components inside the engine compartment were unaffected by the accident. However, the intake pipe and ignition system was observed to be damaged due to the induced impact from the accident. There was also no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the engine compartment

Photo 14 shows a close up view of the Motor Car's engine compartment, which was accessed by lifting the front cabin of the Motor Car. The intake pipe and ignition system (circled) was observed to be damaged due to the induced impact from the accident.

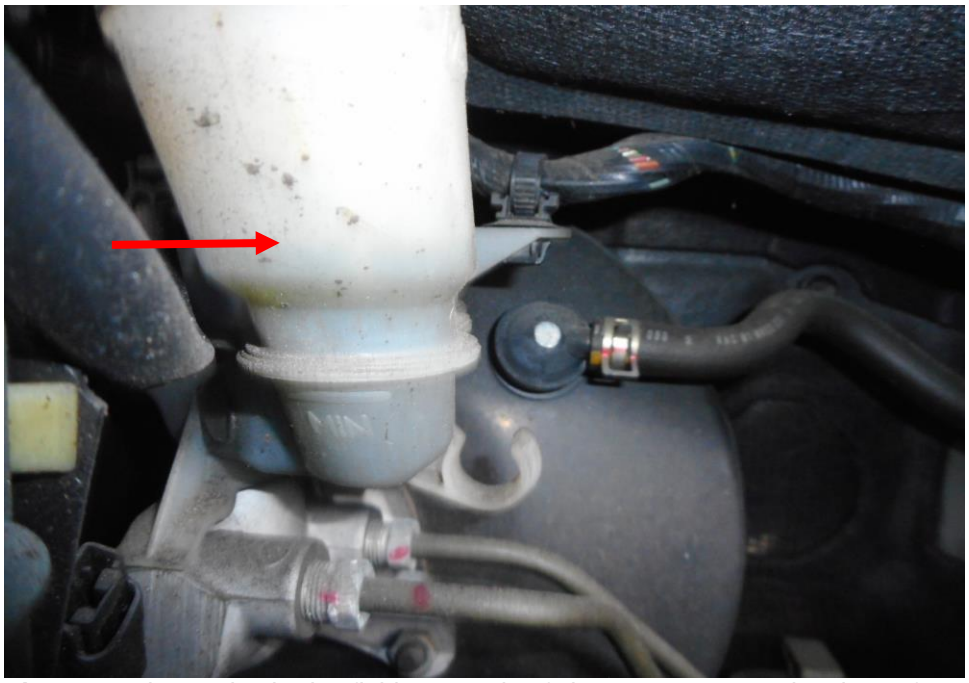

Photo 15 shows the brake fluid reservoir of the Motor Car at the time of my inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.

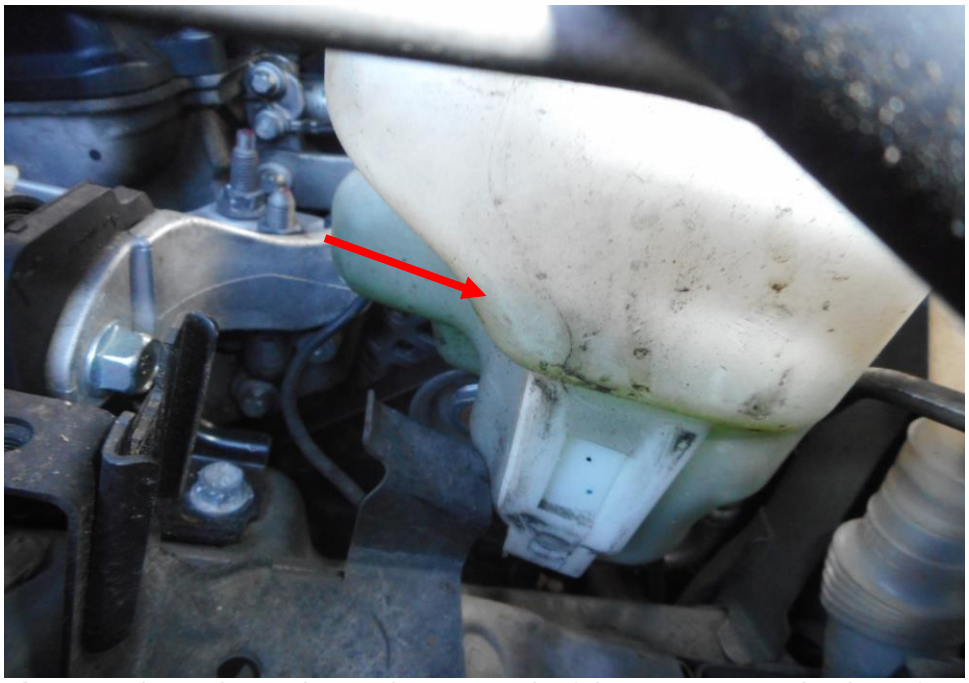

Photo 16 shows the engine coolant reservoir of the Motor Car at the time of my inspection. The engine coolant was observed to be of sufficient level (arrowed) and without any visible contamination.

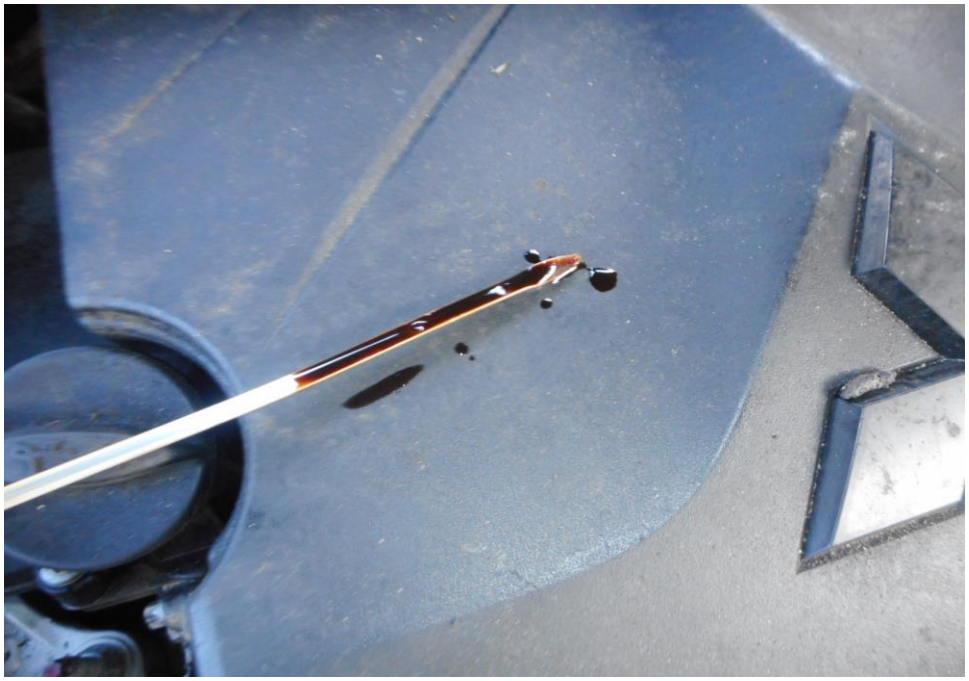

Photo 17 shows the engine oil dip stick of the Motor Car at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

Photo 18 shows the undercarriage of the Motor Car, 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 Car.

Steering System & Braking System

12. For this inspection, I was not able to conduct any tests on the steering system of the Motor Car due to the Motor Car running on electric power steering (EPS) which requires the Motor Car to be started and the ignition system was damaged as a result of the accident. (Unable to be started)

13. Static brake tests conducted on the Motor Car 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 Car. The braking system of the Motor Car was likely to be in serviceable condition at the material time. This was taking into consideration that the brake fluid was of sufficient level, and also that there was no sign(s) of brake fluid leakage along the brake hoses and brake pipes.

14. My visual examination of the various steering and braking components which had included the rack and pinion, tie rods, tie rod ends and ball joints, brake hoses and brake pipes had revealed that these components were all generally intact. See photo 19 - 24 below.

Photo 19 shows the brake drum (circled) and brake hose/pipe (arrowed) at the rear left wheel of the Motor Car and it was observed to be intact

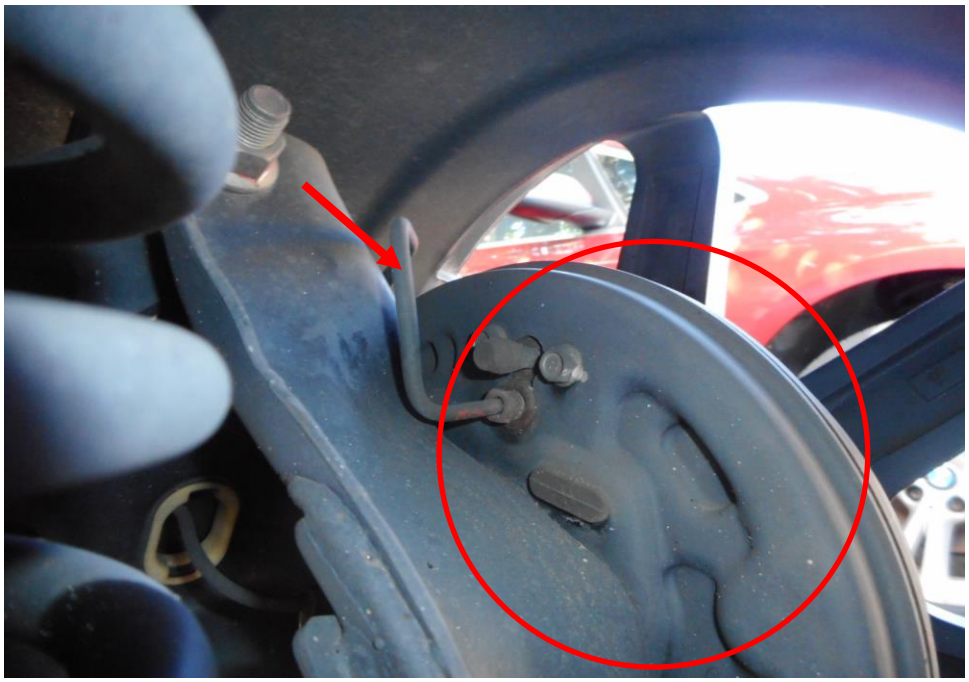

Photo 20 shows the brake drum (circled) brake hose/pipe (arrowed) at the rear right wheel of the Motor Car and it was observed to be intact

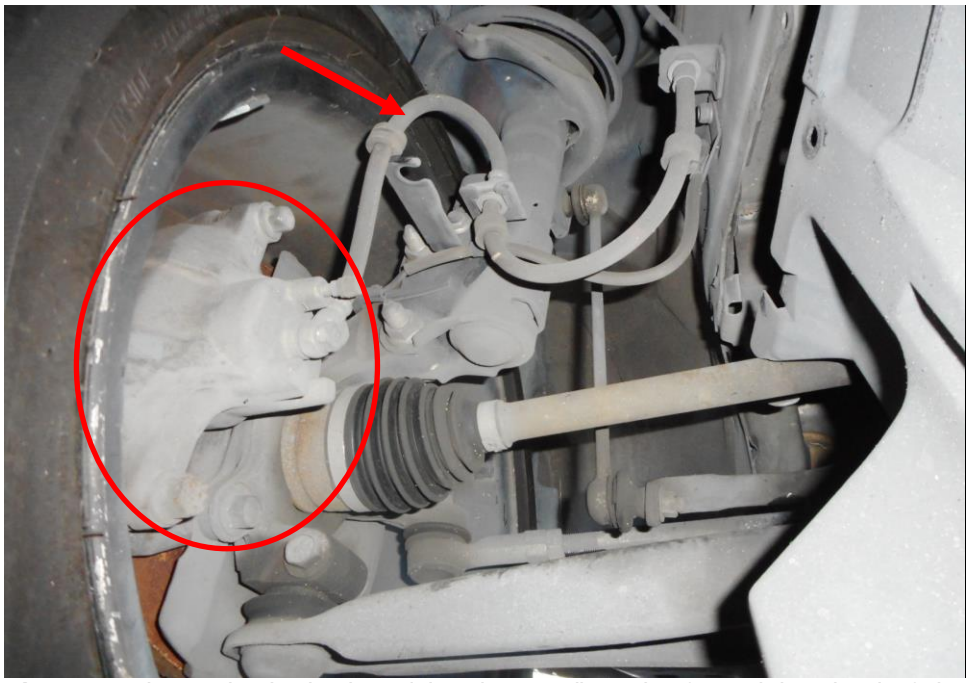

Photo 21 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Photo 22 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was 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 at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

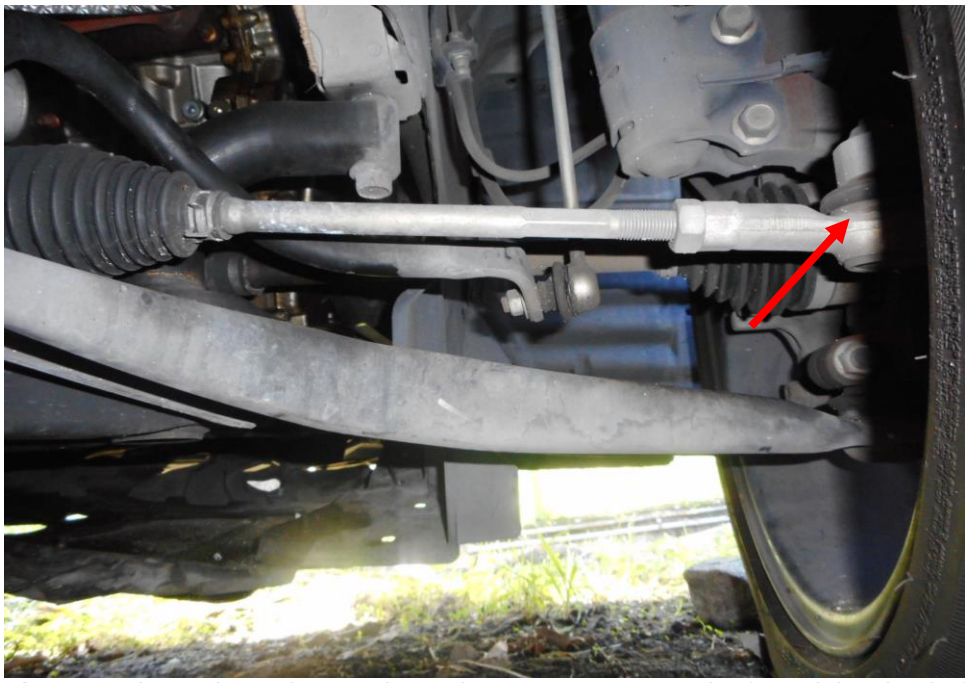

Photo 23 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod end (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition at the material time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

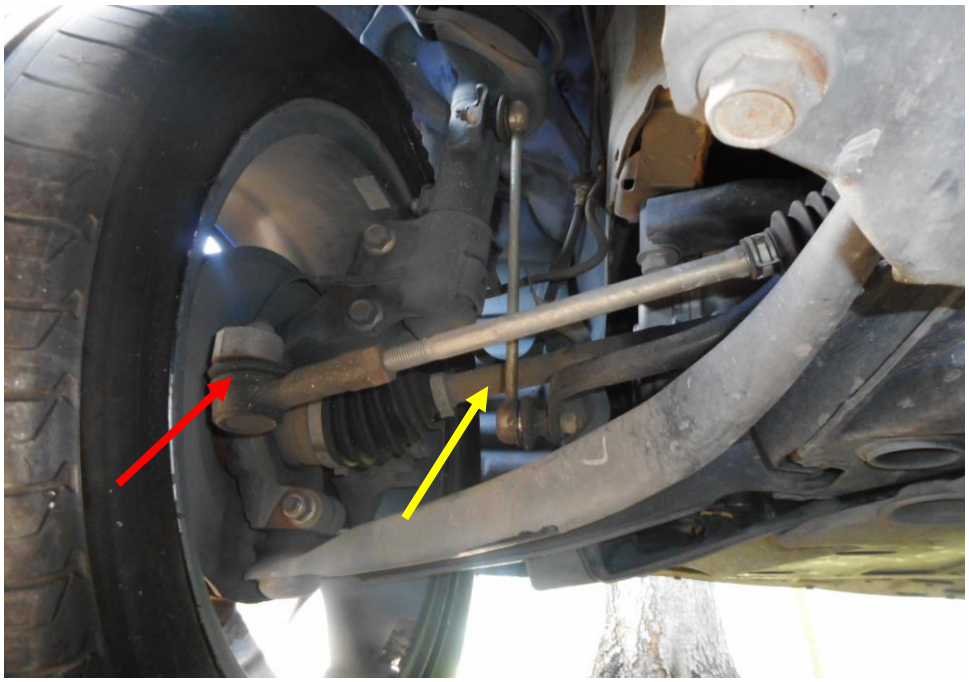

Photo 24 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod end (arrowed) and drive shaft (yellow arrow). The various undercarriage components of the Motor Car were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Electronic Safety / Warning Indicators

15. 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) during cranking of the engine was not able to be initiated as the engine of the Motor Car could not be started due to damage to its ignition system arising from the accident.

Seat Belts

16. For this particular case, only the Front right seat belt of the "Motor Car" were tested and the seat belt was able to be fastened securely into the respective pre-tensioners that were fitted at the sides of each seat.

Operational Behaviour of the Motor Car

17. 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 (engine could not be started and body structure affected).

Conclusion

18. For this particular case, I was unable to determine whether there was any possible mechanical failure to the Motor Car that may have contributed to the accident as 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 and suspension system.

19. However we were able to conduct static test to its braking system & it to likely to be serviceable at the material time. This was taking into consideration that the brake fluid was of sufficient level, and also that there was no sign(s) of brake fluid leakage along the brake hoses and brake pipes.

20. We were also visually observed the various components of the steering system and found them to be intact & suggest that it was likely to be serviceable at the material time as well.

21. The front right and rear left tyres were found to be deflated due to the result of the accident, however 4 tyres of the Motor Car was found to be in serviceable condition as 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 4 tyres were observed to be with remaining tread depth of approximately 5.3mm to 5.6mm.

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