LKK Auto Consultants Pte Ltd
Company Registration No. 199607198R
51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108

Your Ref: TP/IP/48875/2020
Our Ref : CI/TPD20014311/P

14th January 2021

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SLM 4872M

1. I refer to your request on 10th December 2020 to conduct a physical inspection of a Motor Car bearing registration number SLM 4872M (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 6th November 2020.

2. The objective of the inspection is to 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 13th January 2021 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.

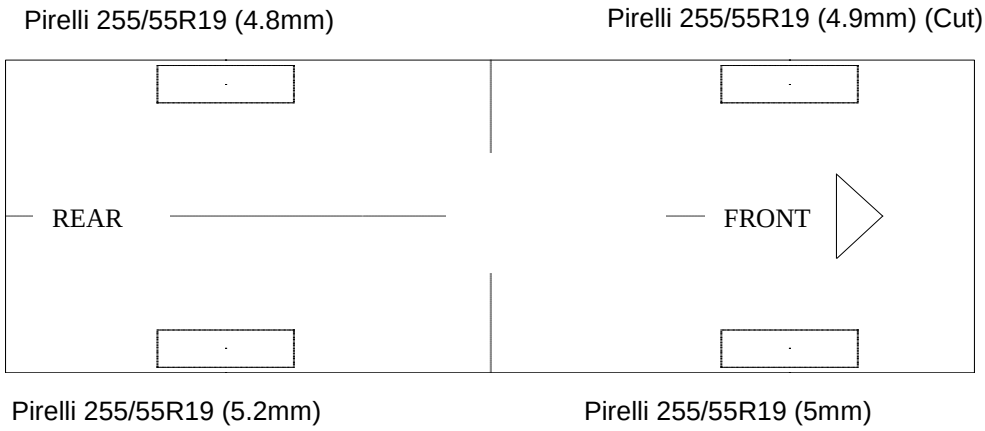
General Condition

4. The mileage of the Motor Car at the time of my inspection was not recorded as the doors of the Motor Car was damaged and not able to open to gain access into the interior this is caused by the result of the accident.

5. The Motor Car was observed to have sustained damage all around. Its front windscreen, front bonnet, front bumper, front left headlamp, its front left fender, front right side mirror and right body panels, were amongst the body parts that were damaged as a result of the accident. The Supplemental Restraint System (SRS) was activated as a result of the accident.

Tyres and Wheel Rims

6. The front left tyre (Cut) and rims was observed to be damaged. However, the condition of the Motor Car's 3 other 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 3 tyres. The 3 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:-



7. The 4 tyres were observed to be wrapped around standard alloy wheel rims. See photo 1 – 14 below.

Photo 1 shows a general view of the rear body of the Motor Car at the time of my inspection. The Motor Car was observed to be intact and unaffected by the accident.

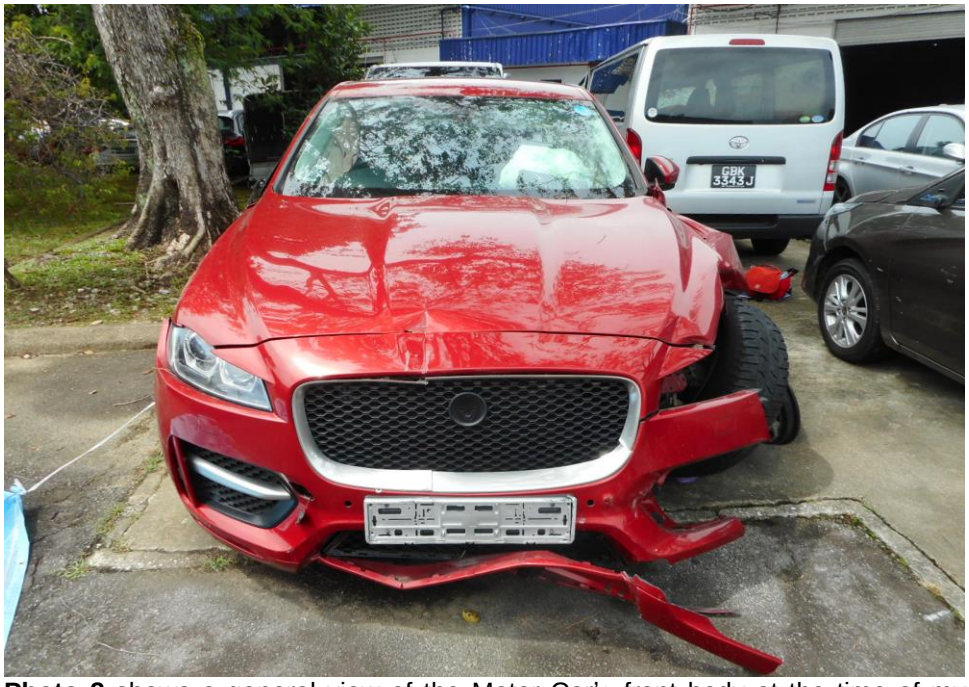


Photo 2 shows a general view of the Motor Car's front body at the time of my inspection. The Motor Car was observed to have sustained damage all around. Its front windscreen, front bonnet, front bumper, front left headlamp, its front left fender, front right side mirror and right body panels, were amongst the body parts that were damaged as a result of the accident. The Supplemental Restraint System (SRS) was activated as a result of the accident.

Photo 3 shows a close up view of the Motor Car's front body at the time of my inspection. Its front windscreen (circled) were amongst the body parts that were damaged as a result of the accident.

Photo 4 shows a close up view of the Motor Car's front body at the time of my inspection. Its front bonnet, front left headlamp and front left fender (yellow circle) front bumper (red arrow) were amongst the body parts that were damaged as a result of the accident.

Photo 5 shows the general view of the Motor Car's right body at the time of my inspection. The Motor Car was observed to have sustained damage on its right body panels were amongst the body parts that were damaged as a result of the accident.

Photo 6 shows the close view of the Motor Car's right body at the time of my inspection. The Motor Car was observed to have sustained damage on its right body panels (circled) were amongst the body parts that were damaged as a result of the accident.

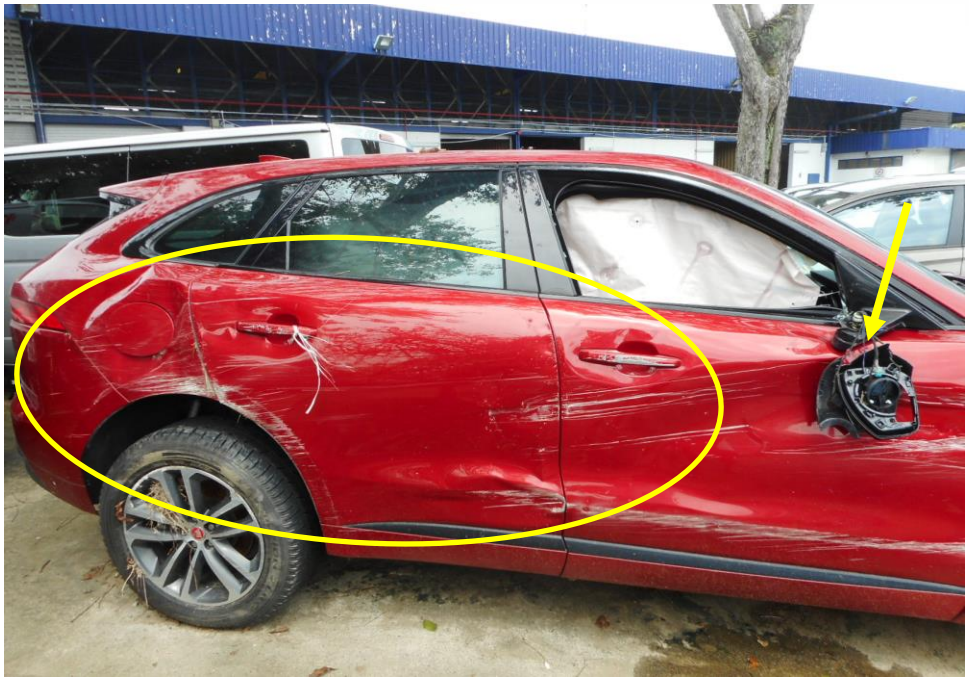


Photo 7 shows the close view of the Motor Car's right body at the time of my inspection. The Motor Car was observed to have sustained damage on its right body panels (circled) and right side mirror (arrowed) were amongst the body parts that were damaged as a result of the accident.

Photo 8 shows a general view of the left body of the Motor Car at the time of my inspection. The Motor Car was observed to be intact and unaffected by the accident.

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 5mm. 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 3 left tyres.

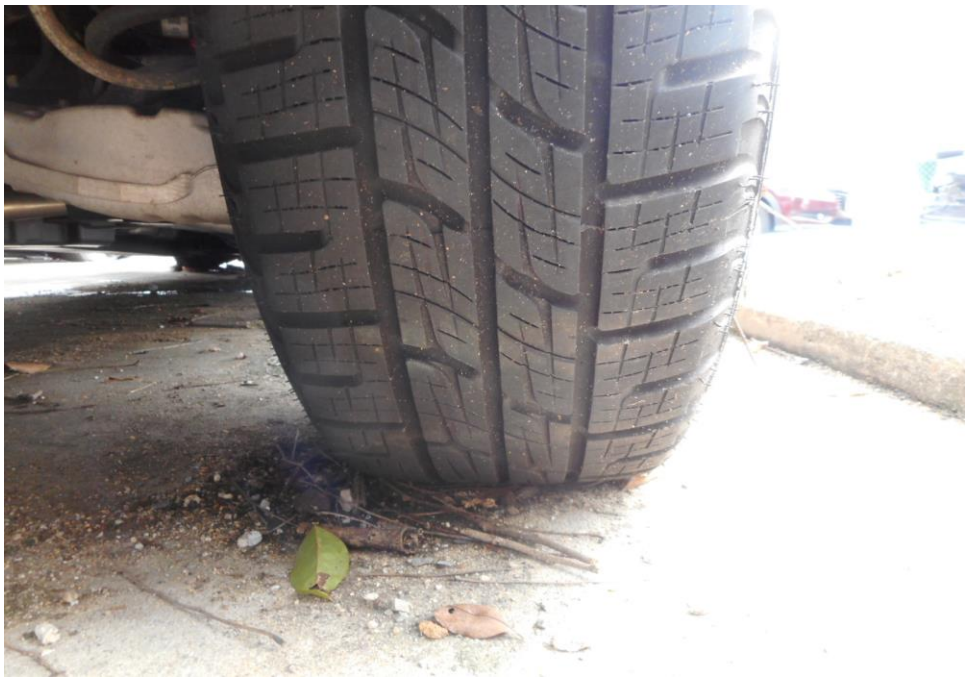


Photo 10 shows the condition of the rear right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.2mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the Motor Car's 3 tyres.

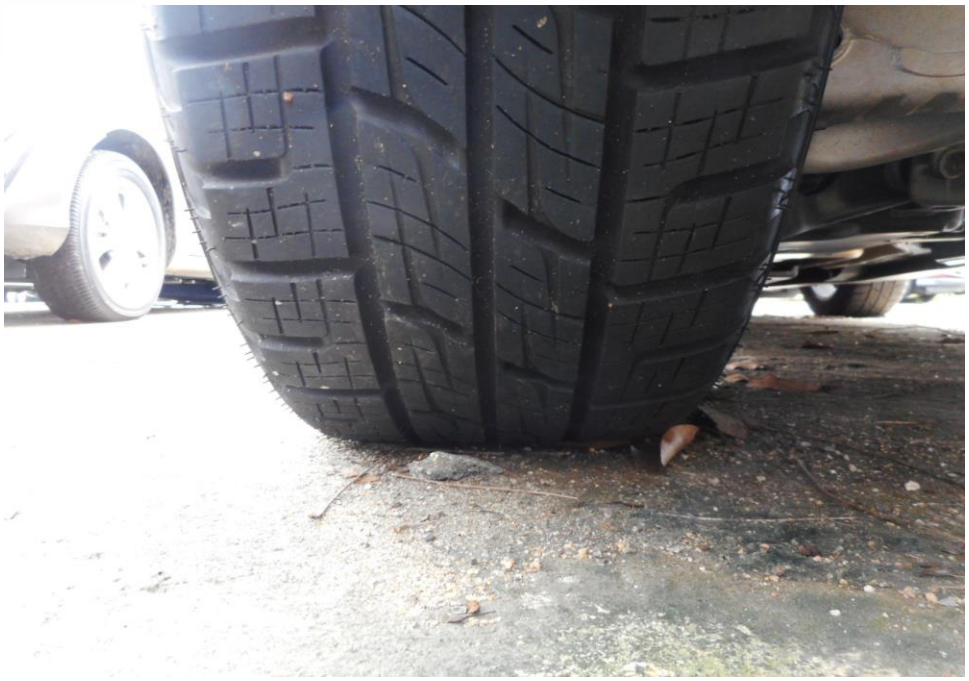


Photo 11 shows the condition of the rear left tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 4.8mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the Motor Car's 3 left tyres.

Photo 12 shows the condition of the front left tyre and wheel rim of the Motor Car, which was observed to be in unserviceable condition as it was damaged and slipped off the wheel rim as a result of the accident with remaining tread depth of approximately 4.9mm.

Photo 13 shows the close up condition of the front left tyre and rim of the Motor Car, which was observed that the tyre was cut (red arrow) and the wheel rim (yellow arrow) was broken, the broken wheel rim had likely caused cut on the tyre in the midst of the accident due to the impact it sustained from the collision.

Photo 14 shows the deployment of the Supplemental Restraint System (SRS) airbag in the Motor Car as a result of the accident.

Engine Compartment & Operating Fluids

8. We were unable to raise the front bonnet of the Motor car to conduct the examination of the Motor Car's engine compartment because the damage caused by the accident had resulted in the damage to the door of the Motor Car's which had blocked the access to open the engine compartment. (unable to open)

9. However, 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 15 and 16 below.

Photo 15 shows the close view of the Motor Car's right body at the time of my inspection. The Motor Car was observed to have sustained damage on its right door and the door was unable to open due to the result of the accident.

Photo 16 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.

Braking System & Steering System

10. 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 ignition system was damaged as a result of the accident. (Unable to be started)

Braking System & Steering System

11. Static brake and steering tests was unable to be conducted on the Motor Car as the access to the interior was blocked. In general, we are only able to do a visual check to the components of the Motor Car.

12. 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. However, the front left tie rod, driveshaft and suspension system was observed to be damaged as a result of the accident. See photo 17 - 23 below.

Photo 17 shows the brake hose/pipe (arrowed) at the rear 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 drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

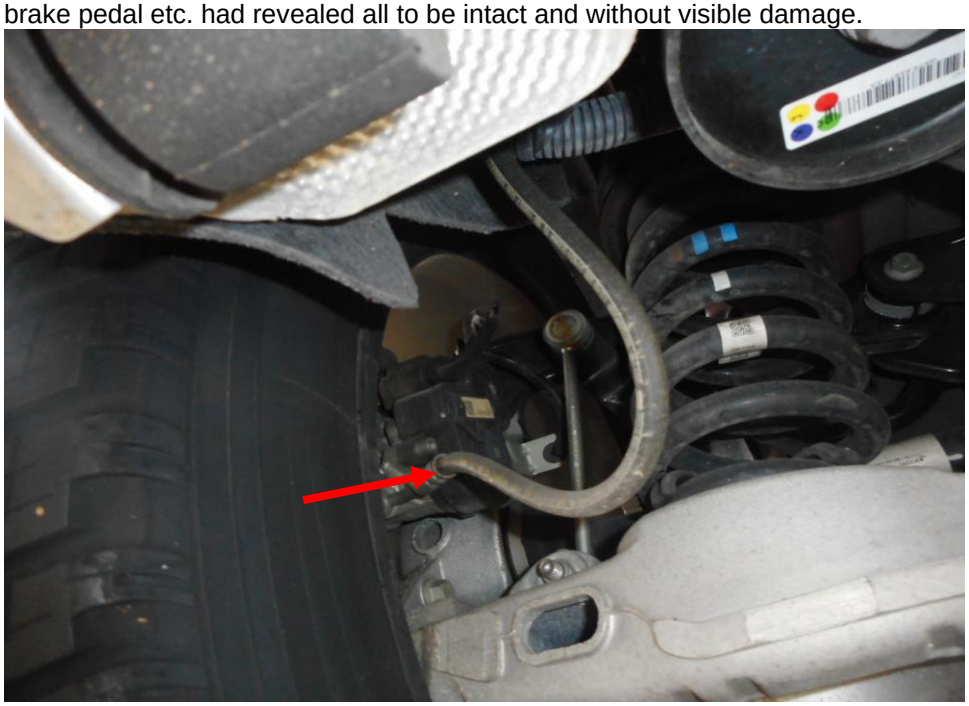


Photo 18 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

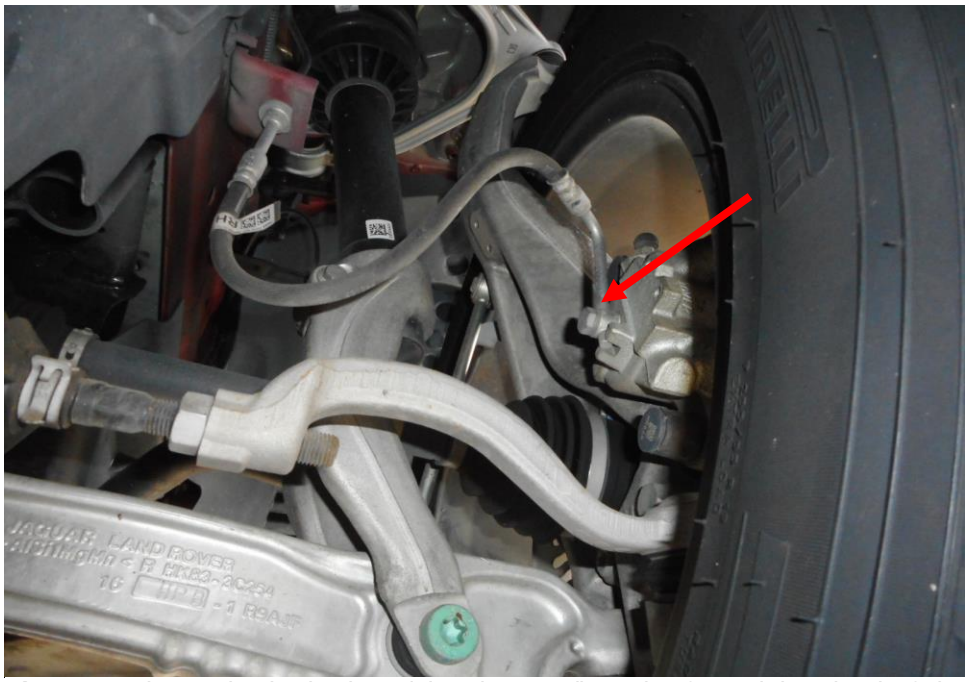


Photo 19 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.

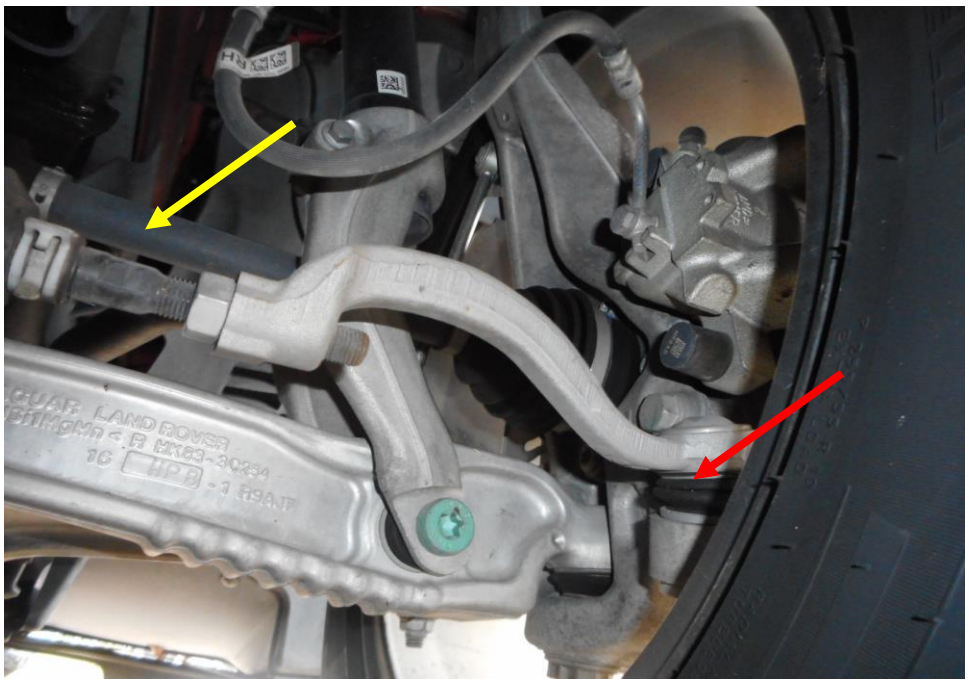


Photo 20 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod (red arrow) and the drive shaft (yellow arrow). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition at the material time of accident. There was also no sign of fluid stain observed on the various undercarriage components at the front left wheel of the Motor Car.

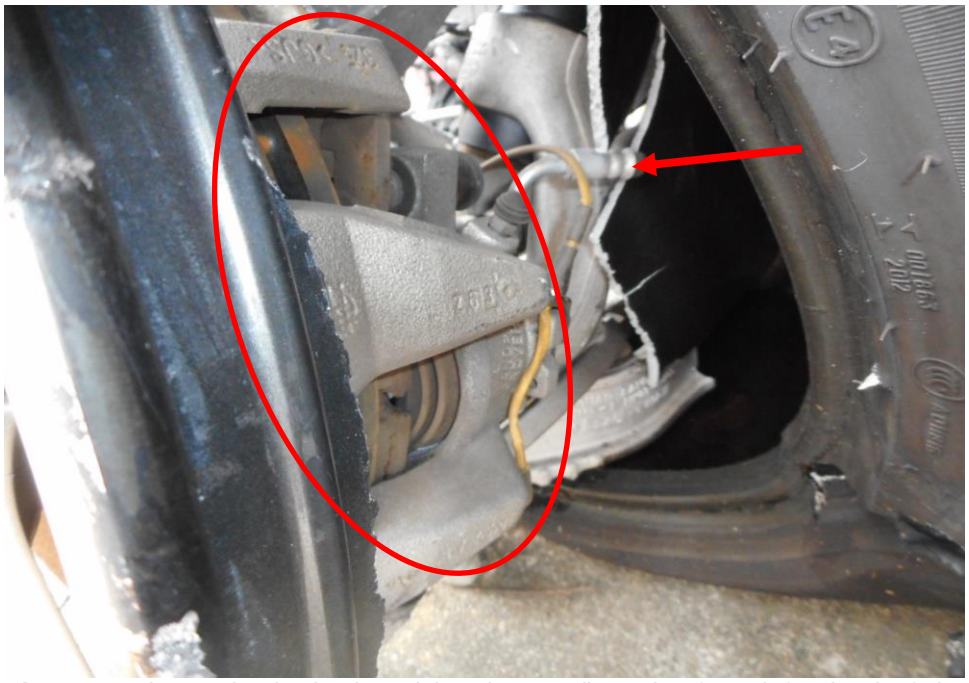


Photo 21 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage.

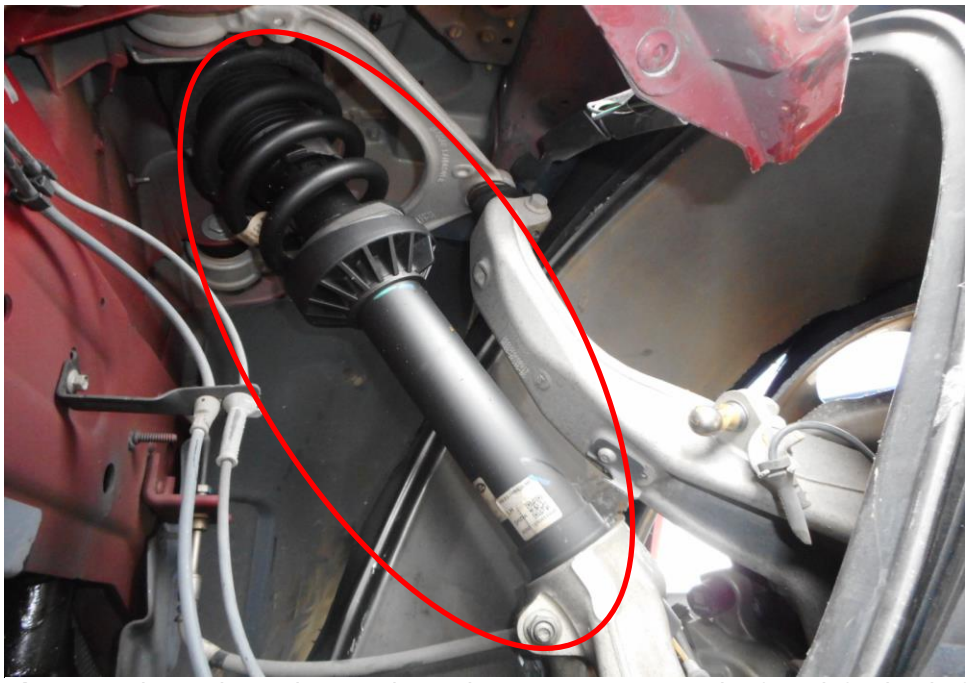


Photo 22 shows the various undercarriage components at the front left wheel of the Motor Car, the suspension system (circled) was observed to be damaged as a result of the accident.

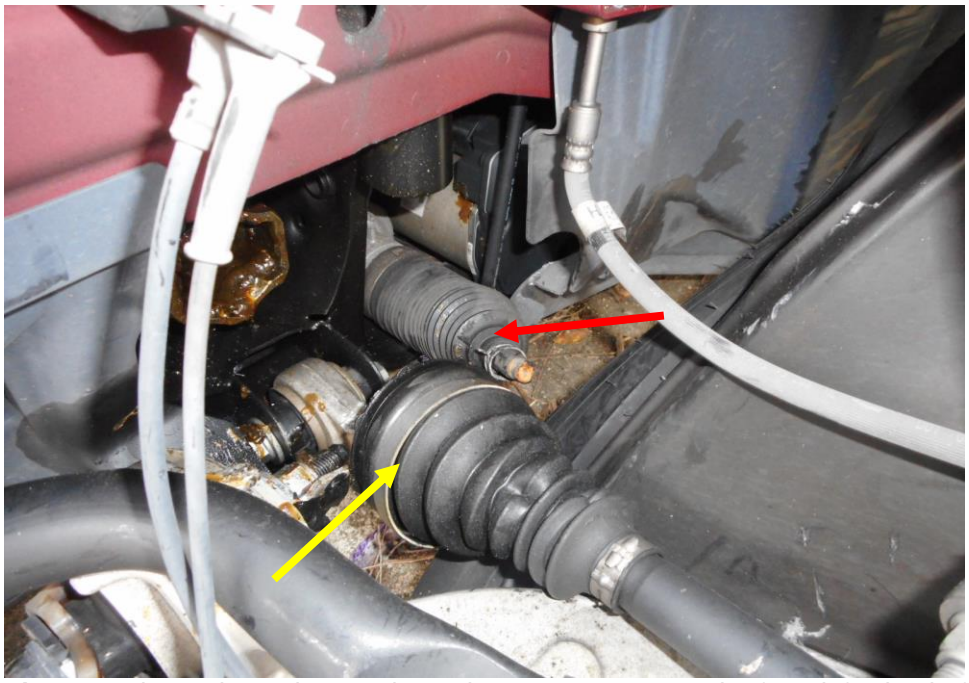


Photo 23 shows the various undercarriage components at the front left wheel of the Motor Car, the steering tie rod (red arrow) and the drive shaft (yellow arrow) was observed to be damaged as a result of the accident.

Electronic Safety / Warning Indicators

13. The Motor Car's automatic self-test of the functionality of its various electronic operating systems was not able to be conducted as there the Motor Car was unable to be started up. (unable to be started)

Seat Belts

14. The front right of the "Motor Car" was worn at the material time of accident and the left seat belt was not, as the respective pre-tensioners that were fitted at the side of each seat was activated upon the material time. See photo 24 & 25 below.

Photo 24 shows that that the seat belt on the right seat was worn at the material time of accident as the safety pre-tensioners was activated at the moment of impact and caused the seat belt to be locked into the last position.

Photo 25 shows that the seat belt on the left seat was not worn at the material time of accident as the safety pre-tensioners was activated at the moment of impact and caused the seat belt to be locked into the last position.

Operational Behaviour of the Motor Car

15. A 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 and the Motor Car was unable to be started.

Conclusion

16. 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. 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.

17. In general our visual inspection of the mechanical components of the Motor Car's braking system appear to suggest that its braking system was in serviceable condition at the material time of accident and there was no leakage found at the braking components of the Motor Car.

18. In our visual inspection of the mechanical components of the Motor Car's steering system. I was unable to determine whether there was any possible mechanical failure to it as it has sustained damaged as a result of the accident.

19. The damaged to the front left tyre of the Motor Car were observed to be caused by the wheel rim of Motor Car itself due to the impact sustained from the collision which caused the rims to cut through the tyre wall as a result of the accident. Refer to photo 12 & 13 above.

20. The front left tyre of the Motor Car were observed to be damaged, however the 3 other tyres were 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 3 tyres. The 4 tyres were also observed to with remaining tread depth of approximately 4.8mm to 5.2mm.

Sherwin Beh
Technical Investigator

Ang Bryan Tani
AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA
Senior Technical Investigator
Technical Investigation & Reconstructionist (SAE-A)