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/13499/2020 18th May 2020
Our Ref : CI/TPD20004864/P

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SCV 6655U

1. I refer to your request on 02nd April 2020 to conduct a physical inspection of a Motor car bearing registration number SCV 6655U (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 10th March 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 18th May 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.

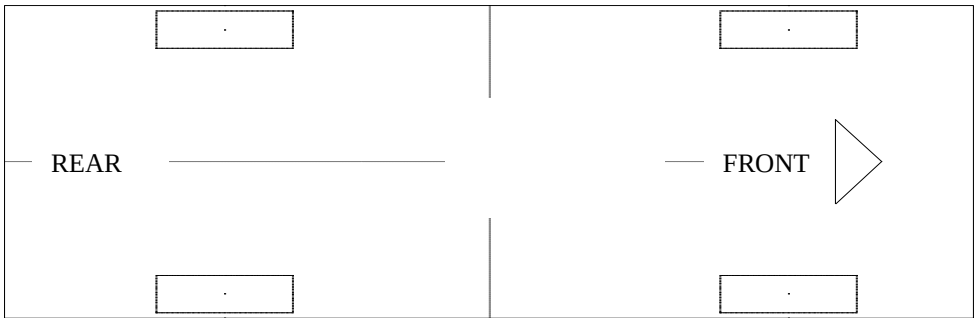
General Condition

4. The mileage of the Motor car at the time of my inspection was 154,897km

5. The Motor car was observed to have sustained damage at its front, left & right portion. Its front windscreen, front bonnet, front bumper, front left and right fender, front left and right headlamp was amongst the body parts and various components in the engine compartments were also 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 tyre of the Motor Car was observed to be deflated due to the damaged rim, however the condition of the Motor Car's other 3 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. The front right rim was observed to be damaged as a result of the accident See photo 1 – 13 below.

Photo 1 shows a general view of the instrument cluster of the Motor Car at the time of my inspection. The mileage of the Motor Car was 154,897km

Photo 2 shows a general view of the Motor Car's rear body at the time of my inspection. The rear portion of the Motor Car was observed to have been undamaged by the accident.

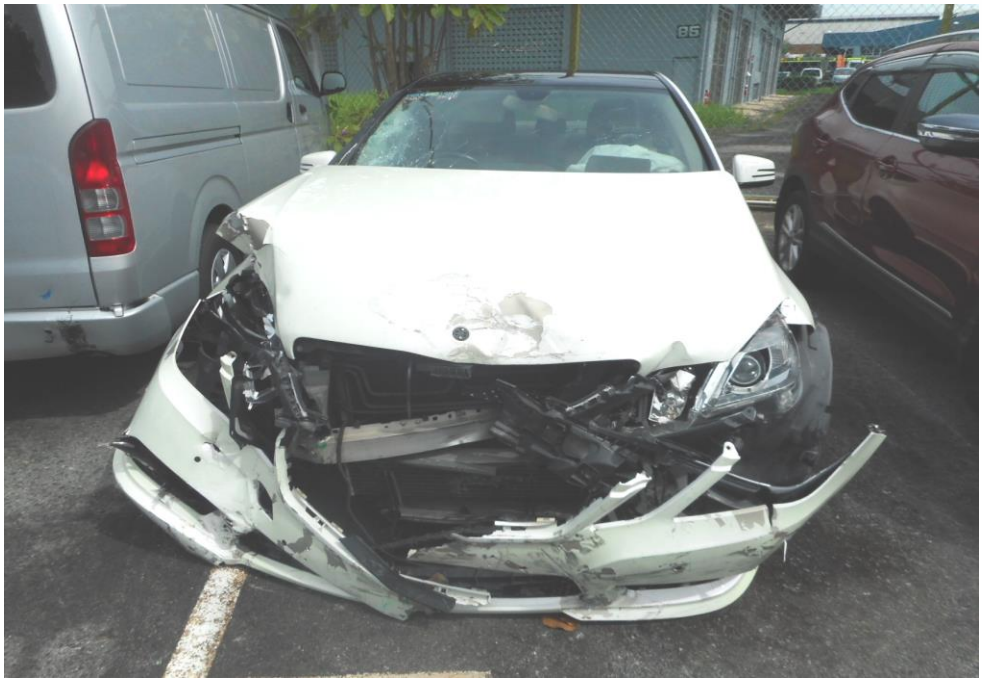


Photo 3 shows a general view of the Motor Car's front body at the time of my inspection. The Motor car was observed to have sustained damage at its front, left and right portion. Its front windscreen, front bonnet, front bumper, front left and right fender, front left and right headlamp was amongst the body parts and various components in the engine compartments were also damaged as a result of the accident. The Supplemental Restraint System (SRS) was activated as a result of the accident.

Photo 4 shows the close up view of the Motor Car's front body at the time of my inspection. The Motor car was observed to have sustained damage at its front portion. Its front windscreen (yellow circle) and front bonnet (red circle) was amongst the body parts and various components in the engine compartments were also damaged as a result of the accident.

Photo 5 shows the close up view of the Motor Car's front body at the time of my inspection. The Motor car was observed to have sustained damage at its front portion. Its front bumper, front left and right fender, front left and right headlamp was amongst the body parts and various components in the engine compartments were also damaged as a result of the accident.

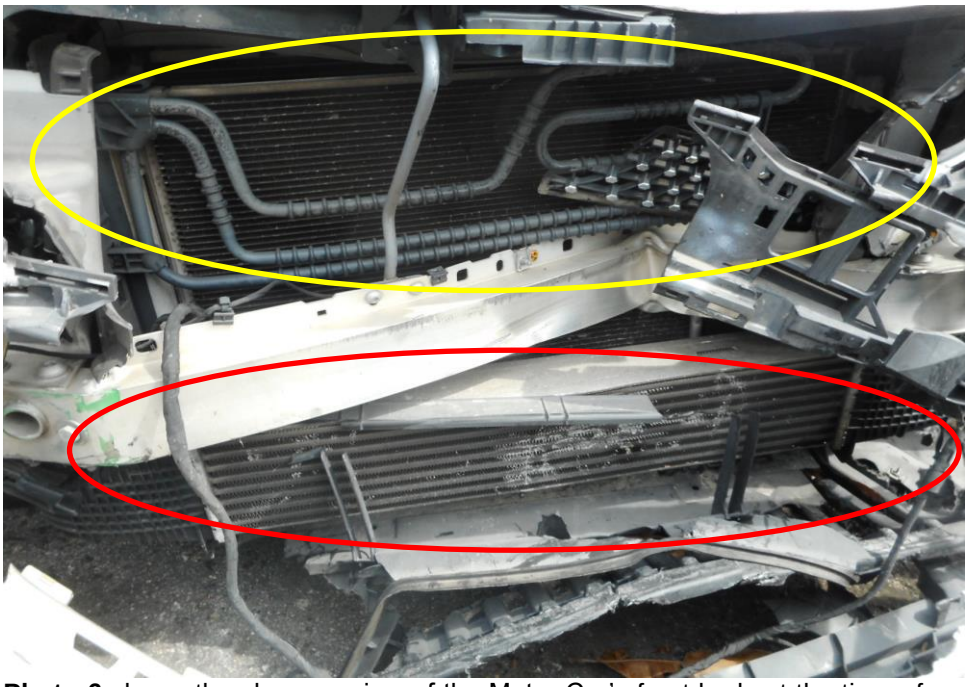


Photo 6 shows the close up view of the Motor Car's front body at the time of my inspection. The Motor car was observed to have sustained damage at its front portion. Its engine radiator (yellow circle), front bumper and various components in the engine compartments (red circle) were also damaged as a result of the accident.

Photo 7 shows a close up view of the Motor Car's engine compartment at the time of my inspection. The Motor car was observed to have sustained damage at its right portion. Its front right fender (red circle) and front right headlamp (yellow arrow) was damaged as a result of the accident.

Photo 8 shows a close up view of the Motor Car's engine compartment at the time of my inspection. The Motor car was observed to have sustained damage at its left portion. Its front left fender (red circle) and front left headlamp (yellow arrow) was damaged as a result of the accident.

Photo 9 shows the condition of the front right tyre of the Motor Car, which was observed to be in unserviceable condition with deflated tyre which was a result of the damaged rim (circled) as a result of the accident. The remaining tread depth was approximately 5.7mm.

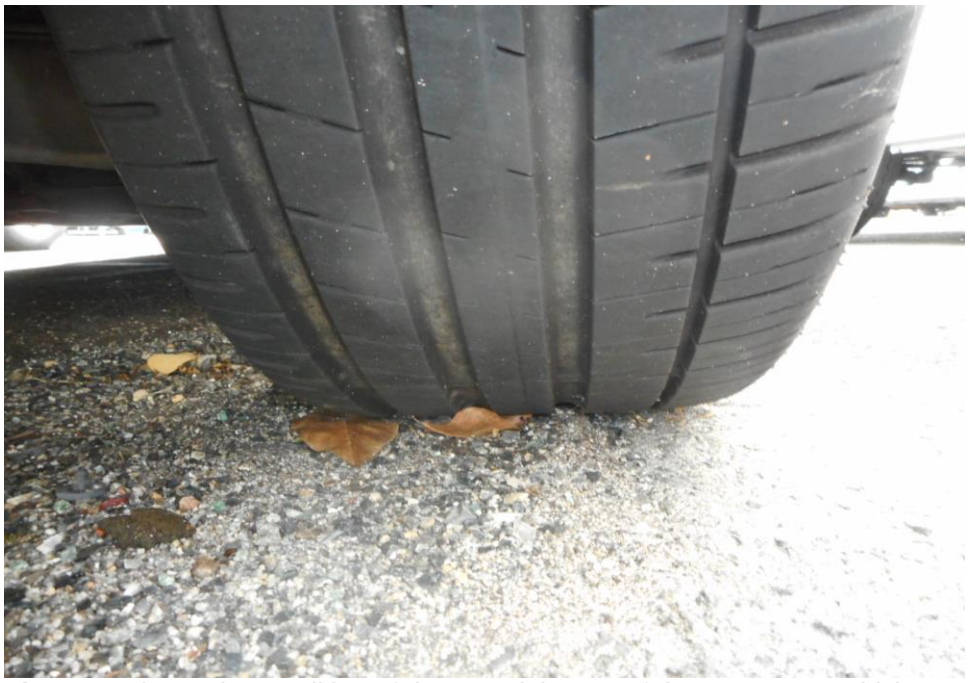


Photo 10 shows the condition of the rear right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.6mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

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 5.9mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

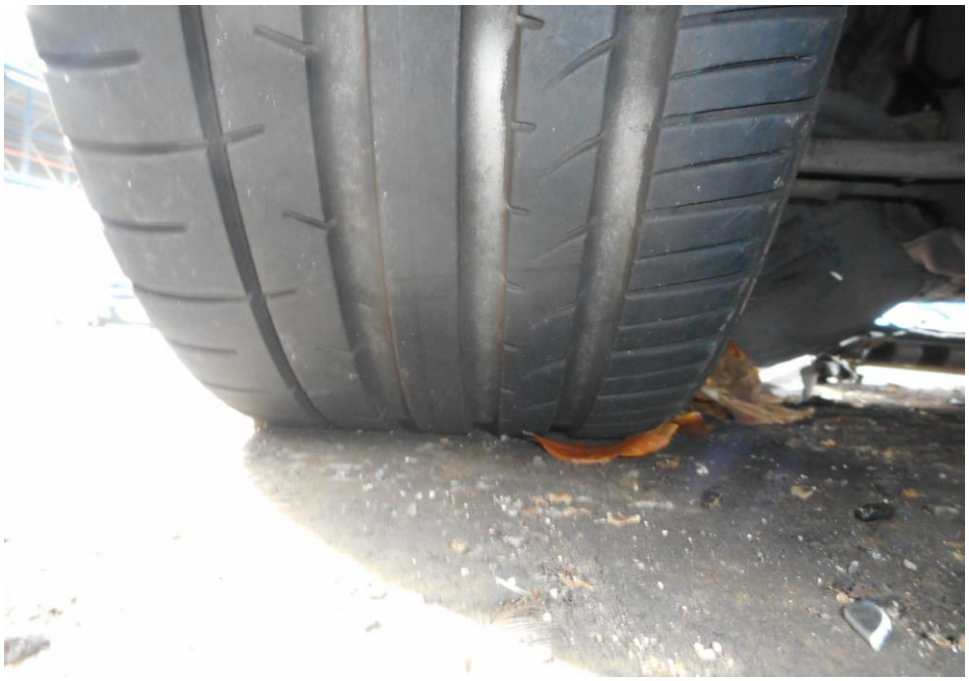


Photo 12 shows the condition of the front left tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 6.1mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 13 shows the deployment of the Supplemental Restraint System (SRS) airbag (arrowed) 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 damages to the lock mechanism of the bonnet and the structure of the engine compartment. (unable to open) However we were able to view & inspect the only brake fluid reservoir from an opening at the damaged bonnet See photo 14 & 15below

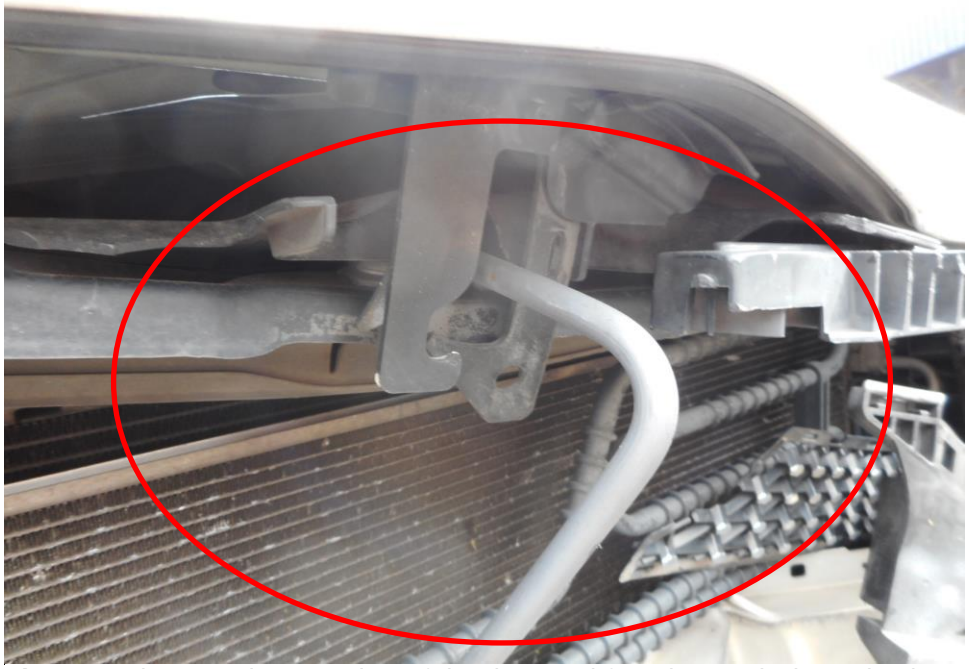


Photo 14 shows a close up view of the damaged front bonnet lock mechanism and the structure of the engine compartment of the Motor Car at the time of my inspection resulting it unable to open a result of the accident. (circled) (Unable to open)

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.

Braking System & Steering System

9. 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)

10. 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.

11. 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.

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. See photo 16 - 22 below.

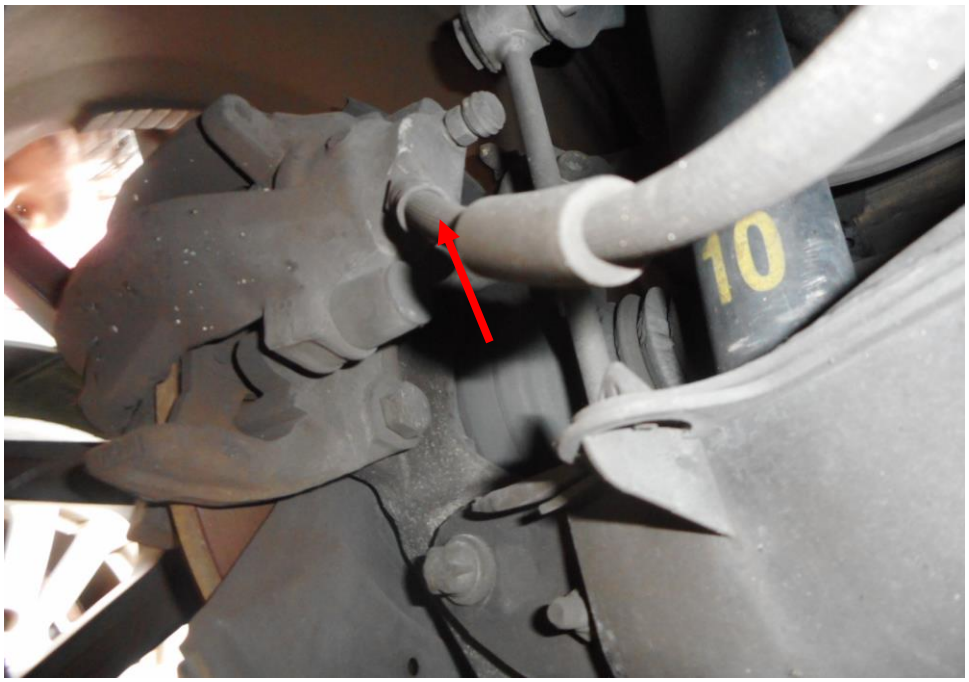


Photo 16 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

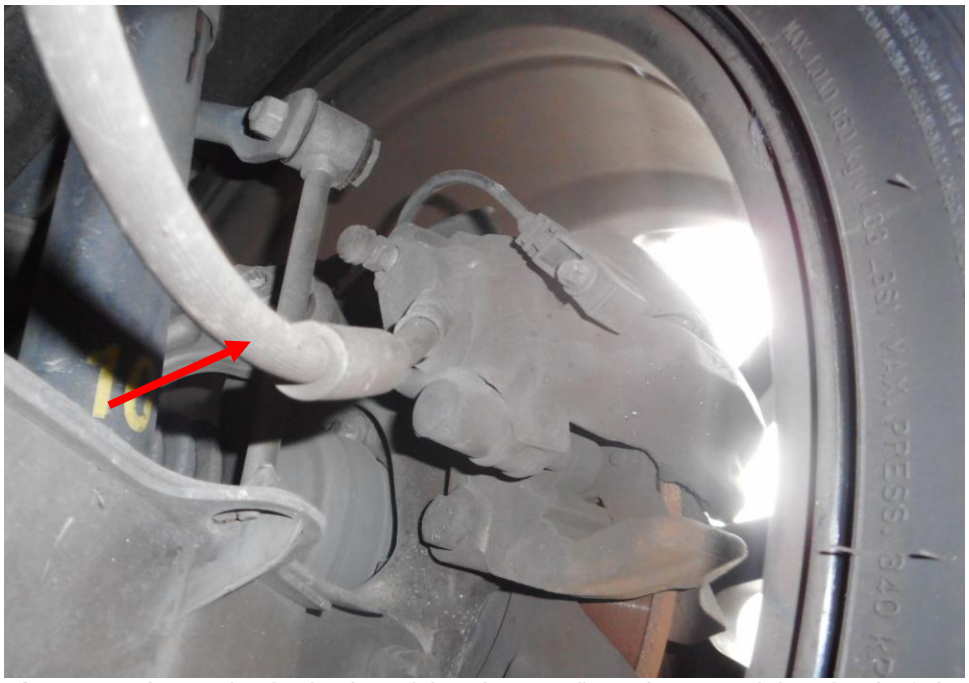


Photo 17 shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

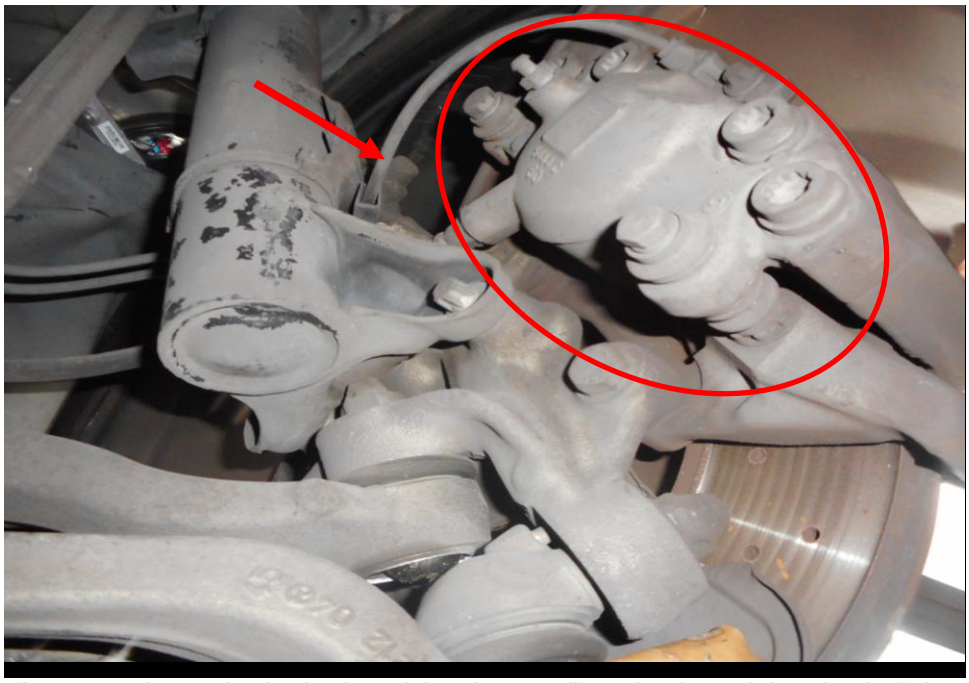


Photo 18 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

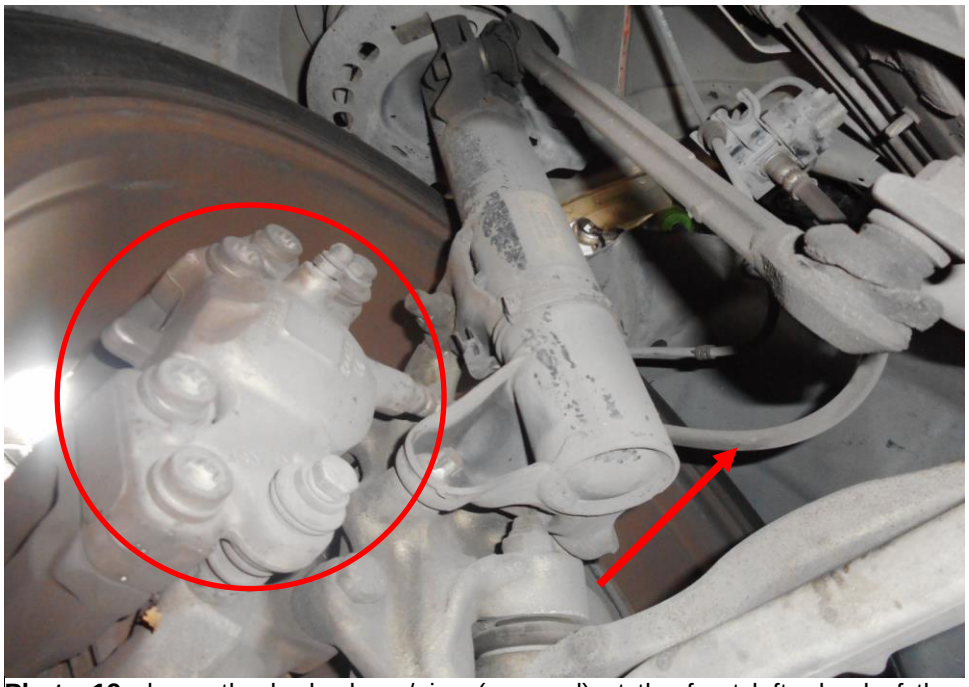


Photo 19 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Photo 20 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.

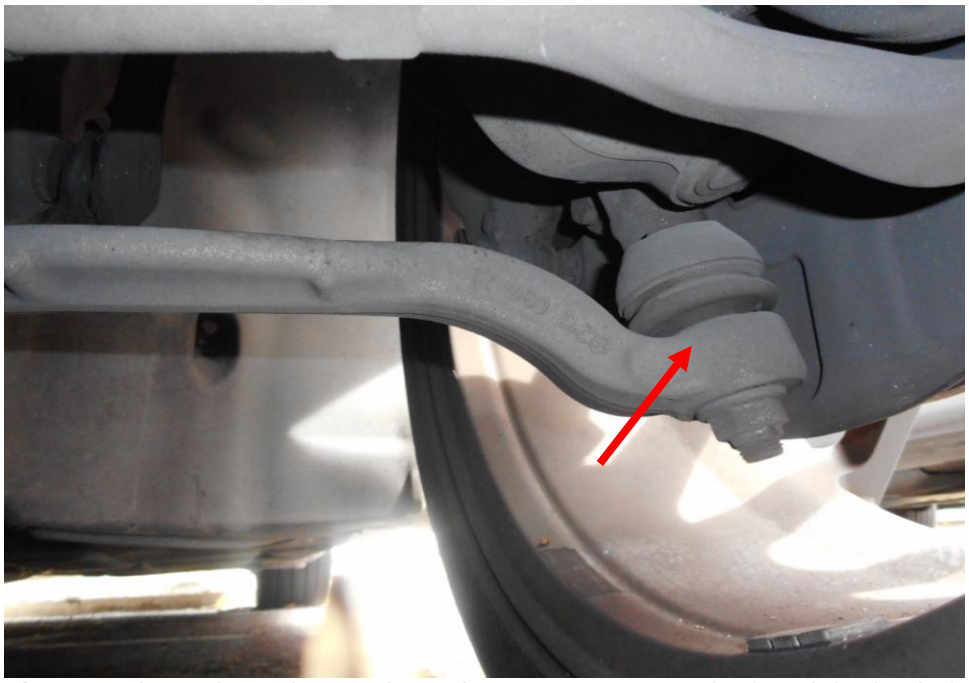


Photo 21 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod end (arrowed). The various Undercarriage components of the Motor Car were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.

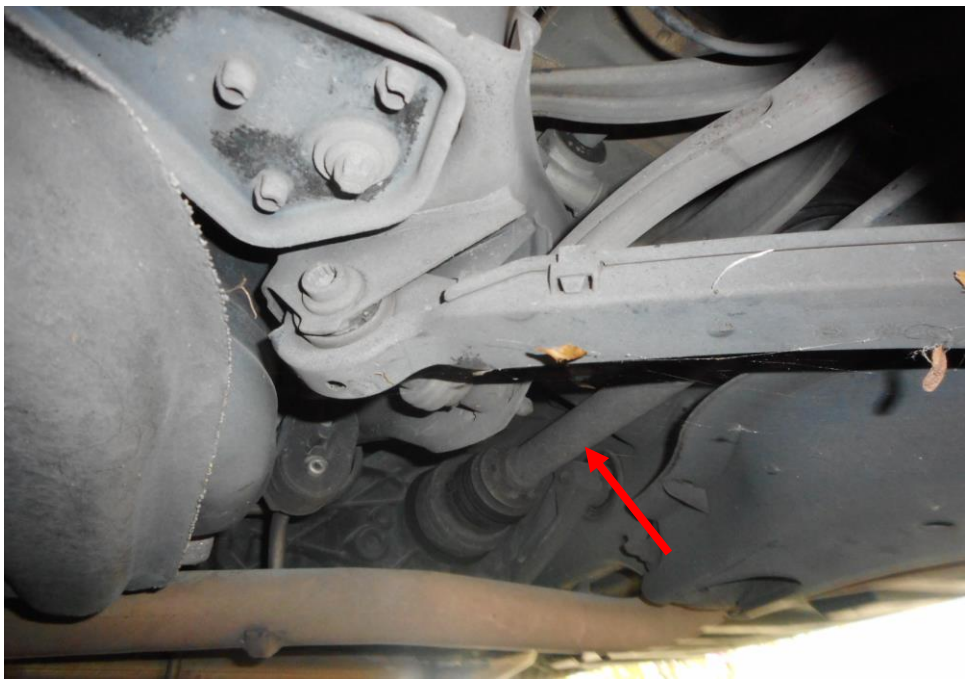


Photo 22 shows the various undercarriage components at the rear left wheel of the Motor Car, in particular the drive shaft (arrowed) were found to be intact, there was also no sign of fluid stain(s) observed on the various undercarriage components.

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 was damaged ignition system and engine system as a result of the accident. (unable to be started)

Seat Belts

14. The both left and right seat belt of the "Motor Car" were unworn at the material time of accident as the respective pre-tensioners that were fitted at the sides of each seat was activated upon the material time and locked both belts in retracted position. See photo 23 & 24 below.

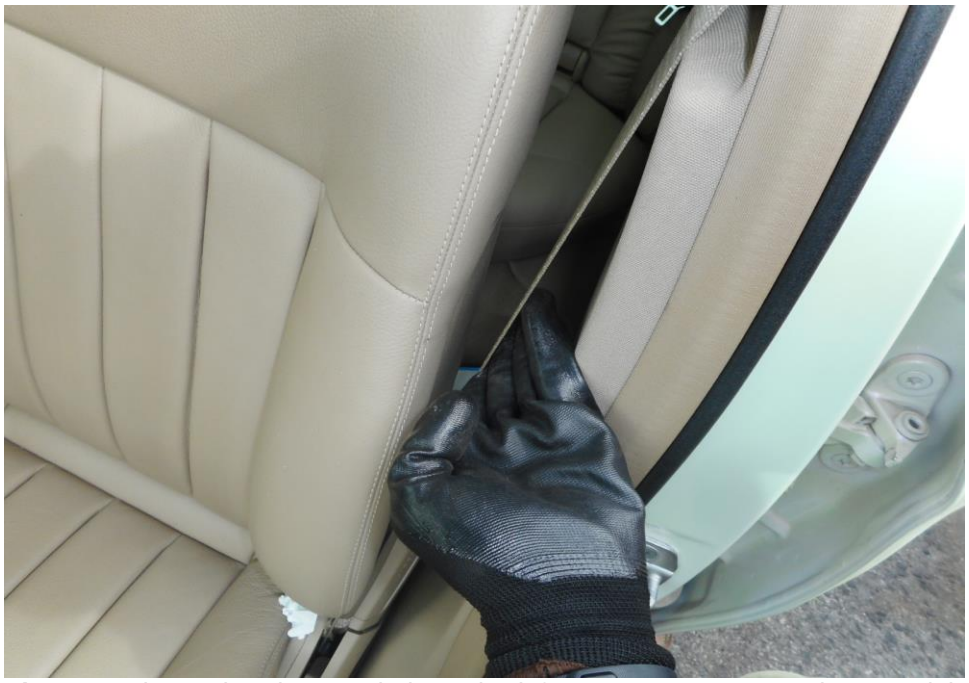


Photo 23 shows that the seat belt on the left seat was unworn at the material time of accident as the safety pre-tensioners was activated at the moment of impact and caused the seat belts to be locked into the last position.

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

Operational Behaviour of the Motor Car

15. 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 (Major systems of the Motor Car damage as a result of the accident.).

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. 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.

17. The front right tyre was found to be deflated due to the damage to the rim, however the other 3 tyres of the Motor Car 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 3 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 5.6mm to 6.1mm and the deflated front right tyre tread depth of approximately 5.7mm

Sherwin Beh
Technical Investigator

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