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/43931/2020
Our Ref : CI/TPD20011427/P

30th October 2020

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SMQ 5162P

1. I refer to your request on 21st October 2020 to conduct a physical inspection of a Motor Car bearing registration number SMQ 5162P (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 7th October 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 30th October 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

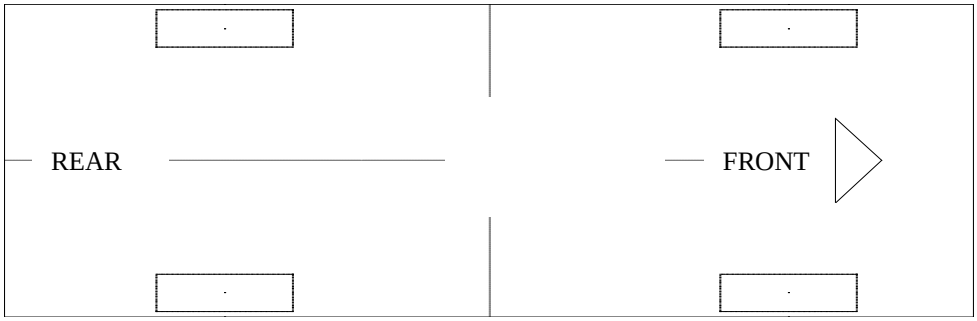
4. The mileage of the Motor Car at the time of my inspection was not recorded as the Motor Car was not able to be started despite multiple attempts in jumpstarting the engine. .

5. The Motor Car was observed to have sustained damage at its front portion. Its front bonnet, front bumper, front left fender, front left headlamp and engine components were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

6. The 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 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:-

Kumho 195/50R15 (6.4mm) Kumho 195/50R15 (5.4mm)



Kumho 195/50R15 (6.2mm) Kumho 195/50R15 (5.7mm)

7. The 4 tyres were observed to be wrapped around standard alloy wheel rims that were found to be without any damage. See photo 1 – 10 below.

Photo 1 shows the general view of the Motor Car's rear body at the time of my inspection. The Motor Car rear was observed to be 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 at its front portion. Its front bonnet, front bumper, front left fender, front left headlamp and engine components were amongst the body parts that were damaged as a result of the accident.

Photo 3 shows the close up view of the Motor Car's front portion at the time of my inspection. The Motor Car was observed to have sustained damage at its front portion. Its front bumper (red arrow) and front left fender (yellow arrow) were amongst the body parts that were damaged as a result of the accident.

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

Photo 5 shows a general view of the Motor Car's left body at the time of my inspection. The left portion of the Motor Car was observed to have been unaffected by the accident.

Photo 6 shows a general view of the Motor Car's right body at the time of my inspection. The right portion of the Motor Car was observed to have been unaffected by the accident.

Photo 7 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 5.7mm. The tyre was sufficiently inflated for vehicular operation with no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread. The 4 tyres of the Motor Car were wrapped around standard steel wheel rims without any damage.

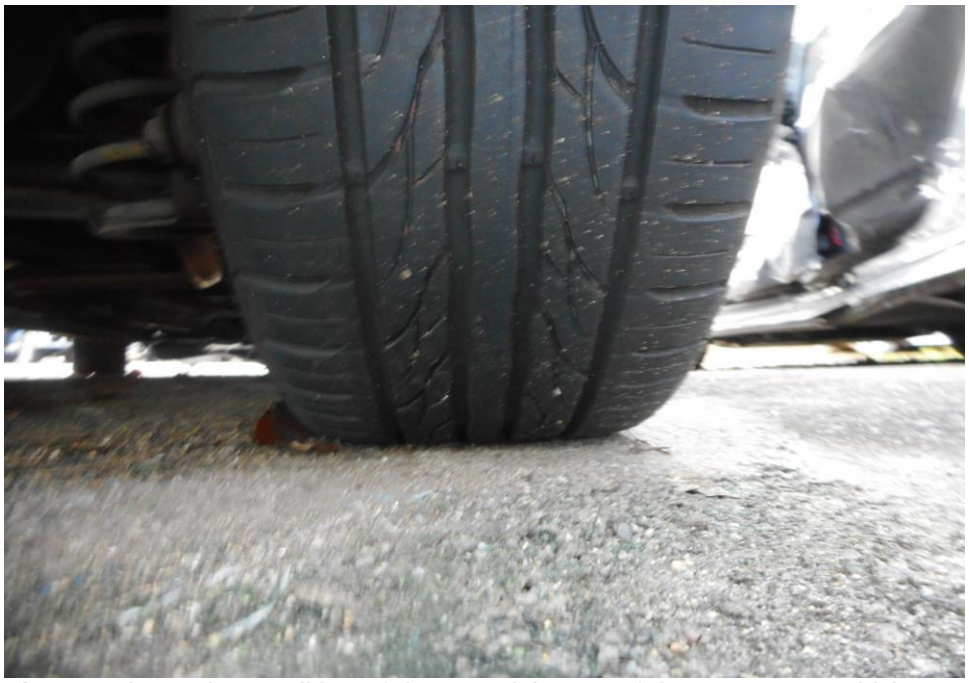


Photo 8 shows the condition of the rear right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 6.2mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 9 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 6.4mm. The tyre, which was wrapped around steel wheel rim, was also observed to be sufficiently inflated for vehicular operation. The 4 tyres of the Motor Car were wrapped around standard steel wheel rims.

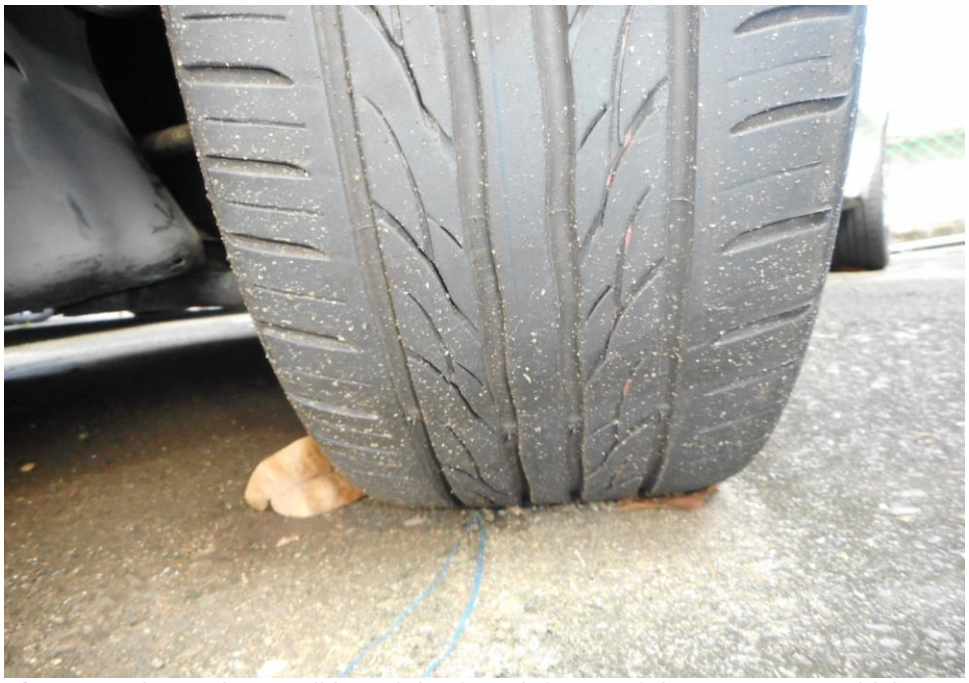


Photo 10 shows the condition of the front left tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.4mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the Motor Car's 4 tyres.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Car, I had observed that the front panel of the engine compartment was damaged as a result of the accident. However, all the parts and components inside the engine compartment to be intact and unaffected by the accident.

9. The engine coolant was observed to be of insufficient level. However the brake fluid and engine oil 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 no sign(s) or indication(s) of 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 sign(s) or indication(s) of fluid leak and/or fluid stain(s). Visually, the various undercarriage components of the Motor Car were all observed to be intact and without any visible damage. See photo 11 – 17 below.

Photo 11 shows a general view of the Motor Car's engine compartment. The front panel of the engine compartment was observed to be damaged as a result of the accident. However, the various parts and components inside the engine compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fluid leakage and/or fluid stain within the engine compartment.

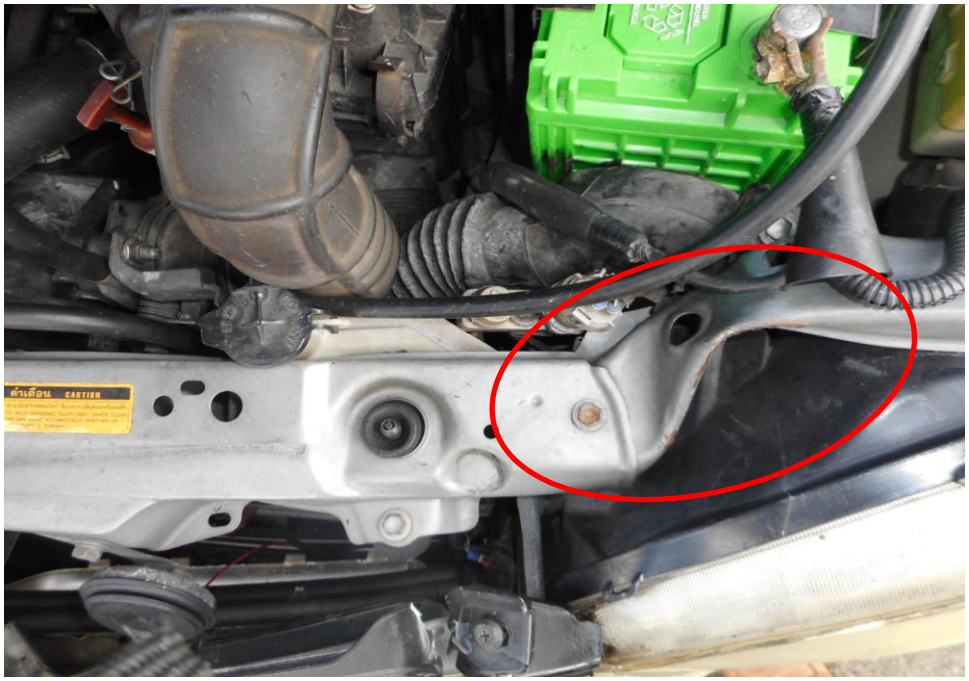


Photo 12 shows a close up view of the Motor Car's engine compartment. The front panel of the engine compartment (circled) was observed to be damaged as a result of the accident.

Photo 13 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 14 shows checks being carried out to the engine coolant of the Motor Car at the time of my inspection. The engine coolant was observed to be of insufficient level.

Photo 15 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 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.

Photo 17 shows the engine of the Motor Car, the engine was not able to be started up despite multiple attempts on jumpstarting it.

Braking System & Steering System

12. 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.

13. Static test on the steering system of the Motor Car was not conducted as it uses electric power steering system which requires the engine to be started, however the Motor Car was not started despite multiple attempts on jumpstarting it. However, my visual examination of the various steering components which had included the steering rack and pinion, tie rod ends and ball joints revealed that these components were all generally in good condition. See photo 18 - 23 below.

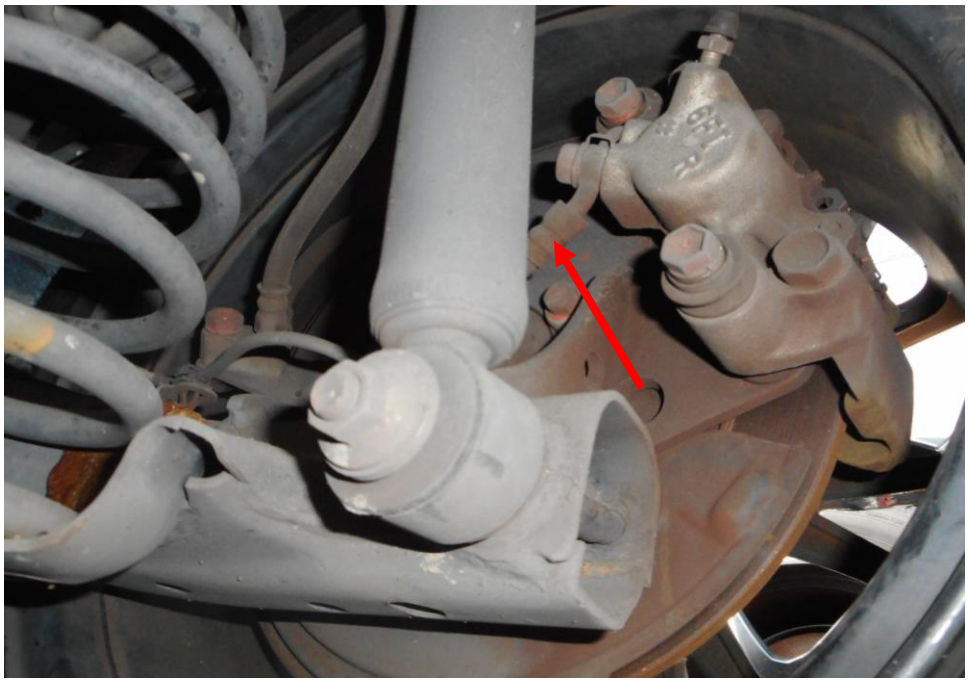


Photo 18 shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

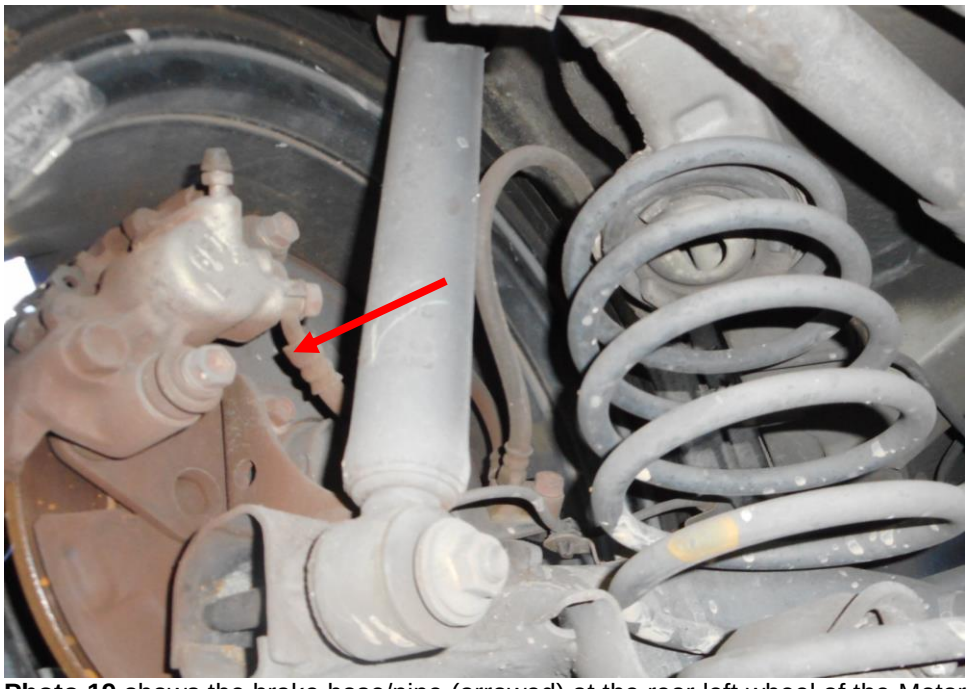


Photo 19 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage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

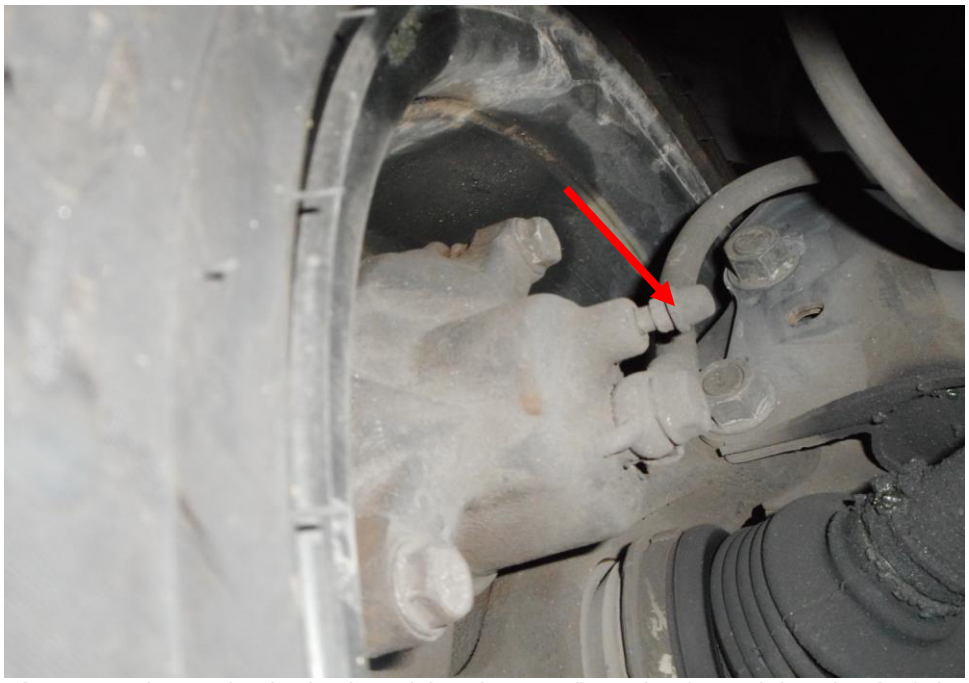


Photo 20 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.

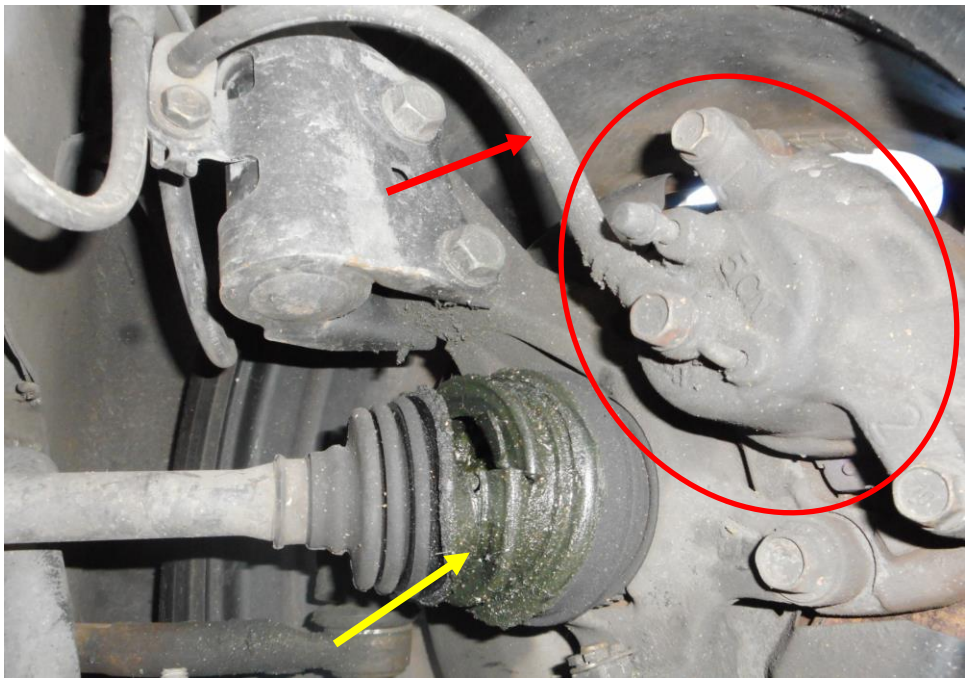


Photo 21 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without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

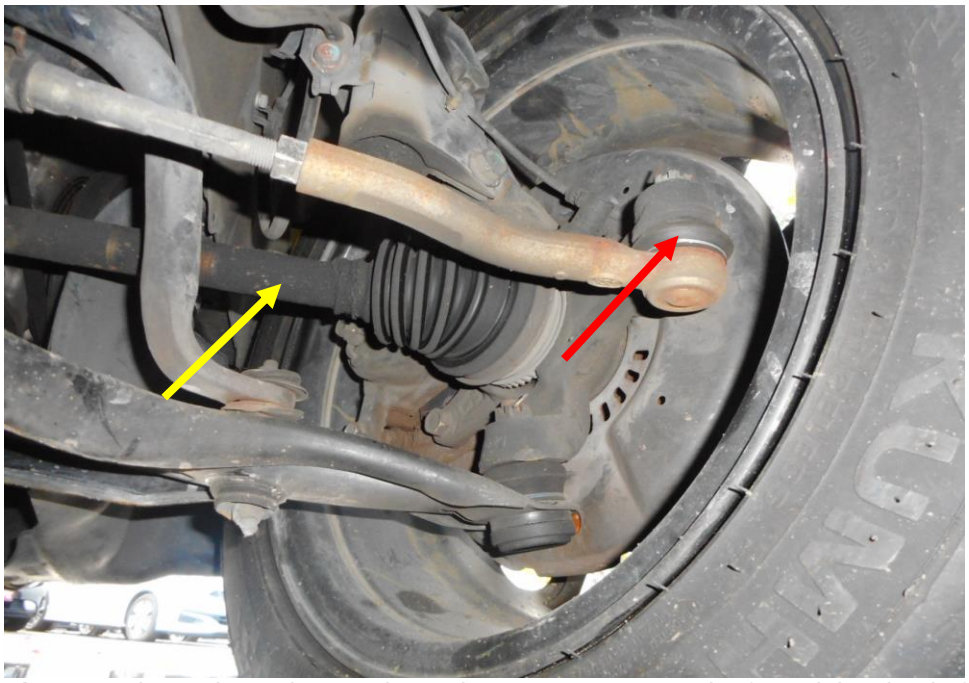


Photo 22 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod (red arrow) and drive shaft (yellow arrow). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to 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 right wheel of the Motor Car.

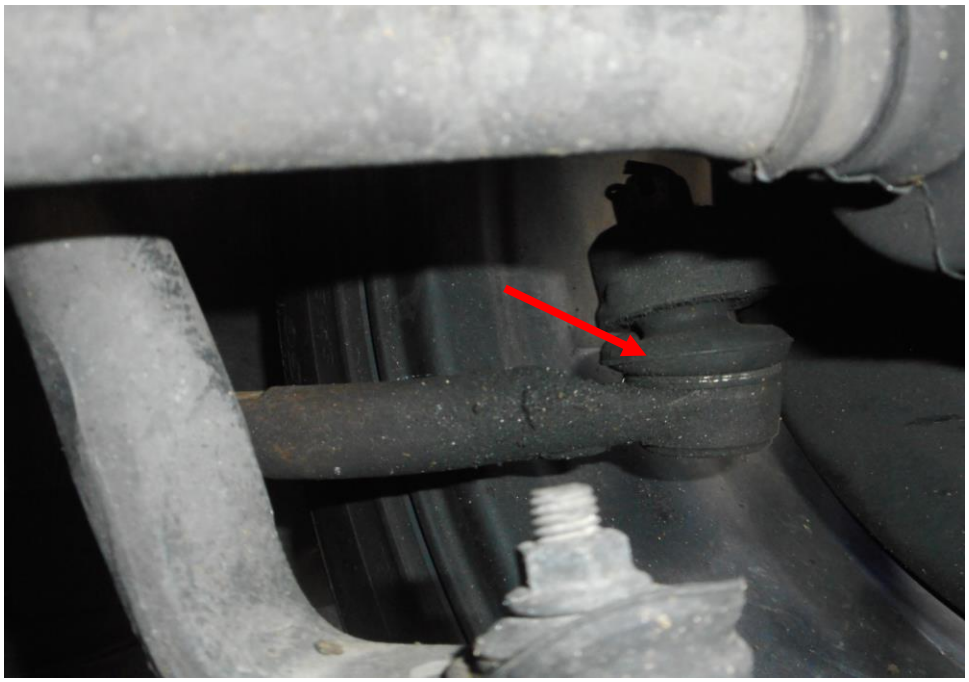


Photo 23 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition at the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

Electronic Safety / Warning Indicators

14. The Motor Car's automatic self-test of the functionality of its various electronic operating systems was not able to be conducted as the engine system was not able to be starting up despite multiple attempt on jumpstarting it.

Seat Belts

15. The front right, front left, rear right and rear left seat belts of the "Motor Car" were tested and all the seat belts were 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

16. An operational test by driving the Motor Car 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 engine could not be jumpstarted up.

Conclusion

17. 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). However it appears that it's braking system were all in found to be in serviceable condition at the material time. I did not find any evidence(s) to suggest that there was possible mechanical failure and/or abnormal behaviour to the Motor Car that may have caused and/or contributed to the accident.

18. The 4 tyres of the Motor Car were also 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 4 tyres. The 4 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 5.4mm to 6.4mm.

Sherwin Beh
Technical Investigator

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