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/33657/2020 8th September 2020
Our Ref : CI/TPD20008771/P

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SLB 5250J

1. I refer to your request on 19th August 2020 to conduct a physical inspection of a Motor Car bearing registration number SLB 5250J (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 10th August 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 2nd September 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

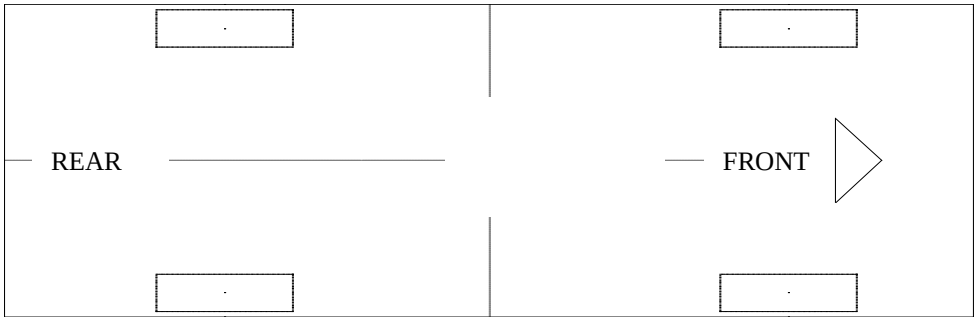
4. The mileage of the Motor Car at the time of my inspection was 39,480km.

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

Tyres and Wheel Rims

6. The front both and rear right tyres and rims was observed to be damaged. However, the condition of the Motor Car's rear left tyre 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 rear left tyre. The rear right tyre were 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:-

Pirelli 225/45R17 (4.4mm) Pirelli 225/45R17 (8.2mm) (Cut)



Pirelli 225/45R17 (4.3mm) (Cut) Pirelli 225/45R17 (8.1mm) (Cut)

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

Photo 1 shows the mileage of the Motor Car at the time of my inspection. The mileage observed was 39,480km.

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 fender and its rear bumper were amongst the body parts that were damaged 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 bonnet (circled), front bumper (arrowed), were amongst the body parts that were damaged as a result of the accident.

Photo 4 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 front fender were amongst the body parts that were damaged as a result of the accident.

Photo 5 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 front fender (circled) were amongst the body parts that were damaged as a result of the accident.

Photo 6 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 7 shows the general view of the Motor Car's rear body at the time of my inspection, its rear bumper were amongst the body parts that were damaged as a result of the accident.

Photo 8 shows the close up view of the Motor Car's rear body at the time of my inspection, its rear bumper (circled) were amongst the body parts that were 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 as it was damaged (arrowed) as a result of the accident with remaining tread depth of approximately 8.1mm.

Photo 10 shows the condition of the rear right tyre of the Motor Car, which was observed to be in unserviceable condition as it was damaged (arrowed) as a result of the accident with remaining tread depth of approximately 4.3mm.

Photo 11 shows the close up condition of the rear right tyre and rim of the Motor Car, which was observed that rim (arrowed) had likely caused cut on the tyre in the midst of the accident due to the impact it sustained from the collision.

Photo 12 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 4.4mm. 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 rear left tyre.

Photo 13 shows the condition of the front left tyre of the Motor Car, which was observed to be in unserviceable condition as it was damaged (arrowed) as a result of the accident with remaining tread depth of approximately 8.2mm.

Photo 14 shows the condition of the front left tyre and rim of the Motor Car, which was observed that rim (arrowed) had likely caused cut on the tyre in the midst of the accident due to the impact it sustained from the collision.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Car, I had observed the brake fluid and engine coolant were all found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids. However, the engine oil was found to be insufficient due to the damaged to the undercarriage oil sump which had caused the engine oil to flow out as a result of the accident. See photo 15 – 19 below.

Photo 15 shows a general view of the Motor Car's engine compartment. I had observed the brake fluid and engine coolant were all found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids. However, the engine oil was found to be insufficient due to the damaged to the undercarriage oil sump which had caused the engine oil to flow out as a result of the accident.

Photo 16 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.

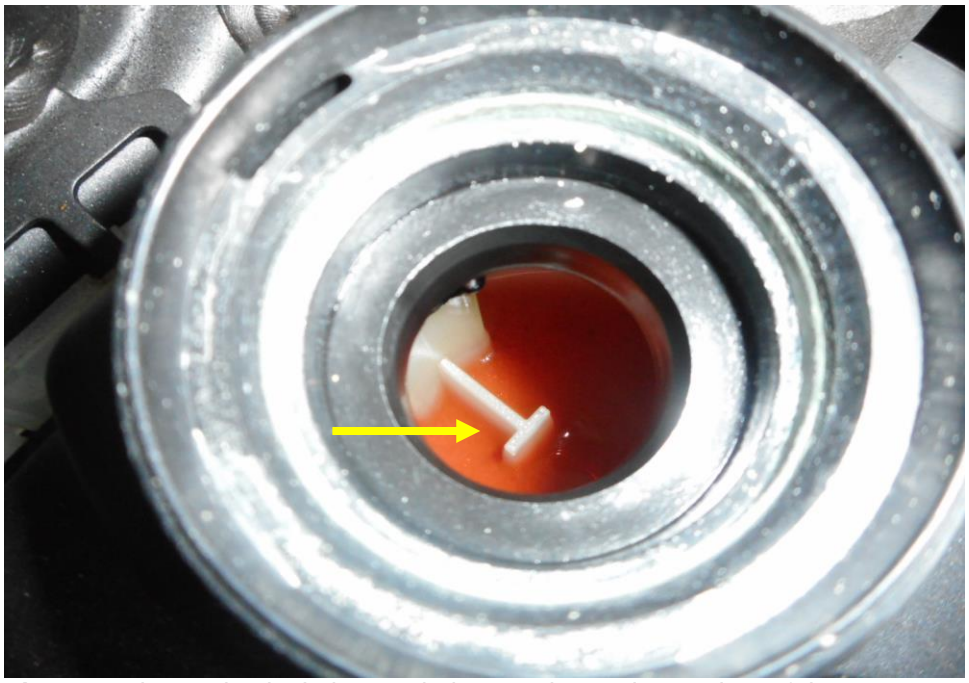


Photo 17 shows checks being carried out to the engine coolant of the Motor Car at the time of my inspection. The engine coolant was observed to be sufficient level (arrowed) without any visible contamination.

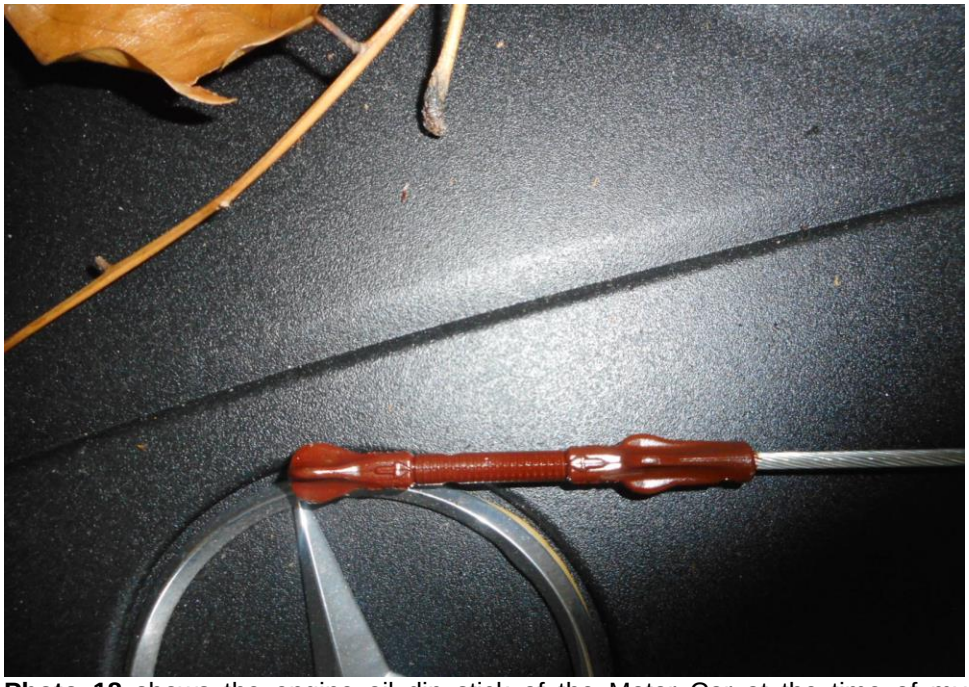


Photo 18 shows the engine oil dip stick of the Motor Car at the time of my inspection. The engine oil was observed to be of insufficient level due to the damaged the undercarriage engine oil sump which caused the coolant to flow out.

Photo 19 shows the undercarriage of the Motor Car, at the area where the engine housing and transmission housing are located. I did find any sign(s) or indication(s) of fluid leak and/or fluid stain(s) due to the damaged to the undercarriage engine oil sump (circled) on the underside of the Motor Car as a result of the accident.

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 engine system was damaged as a result of the accident. (Unable to be started and unsafe to operate).

Braking System & Steering System

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. 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 without damage. See photo 20 - 25 below.

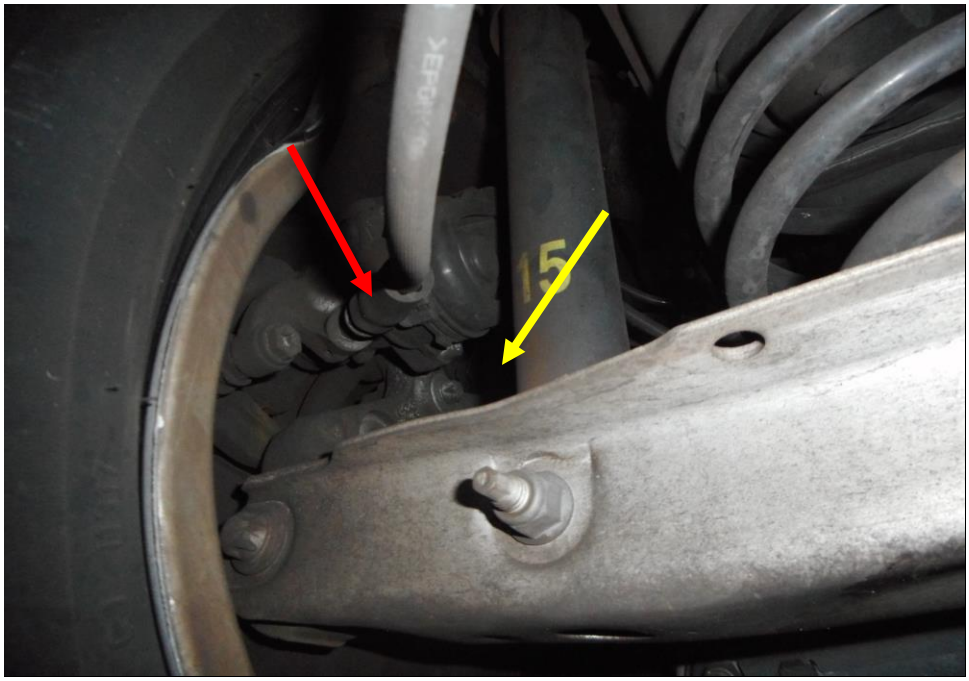


Photo 20 shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Car. No leakage of brake fluid was observed Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

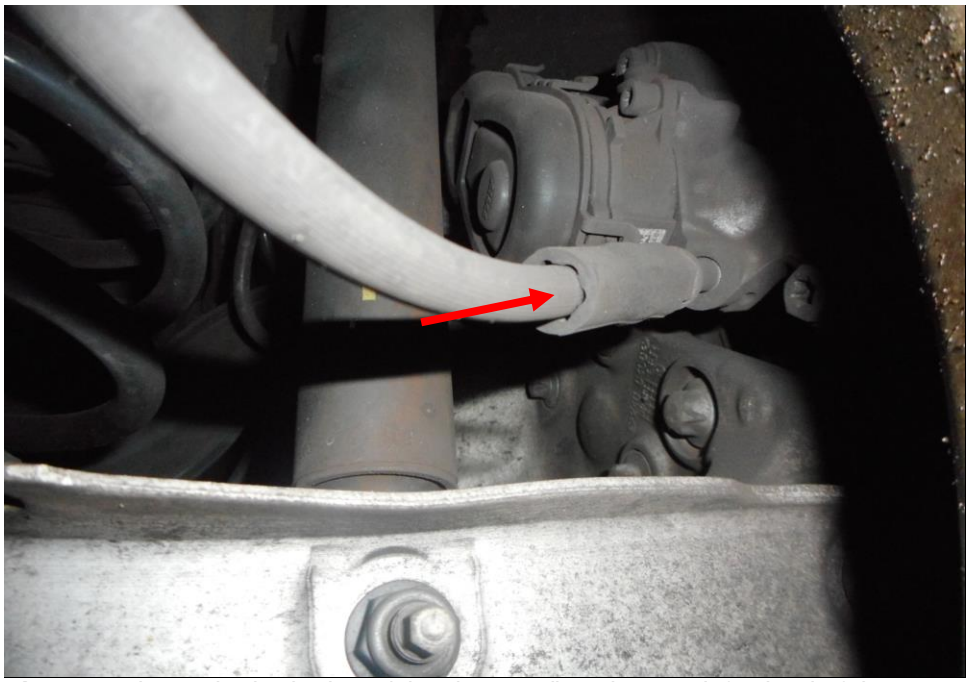


Photo 21 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.

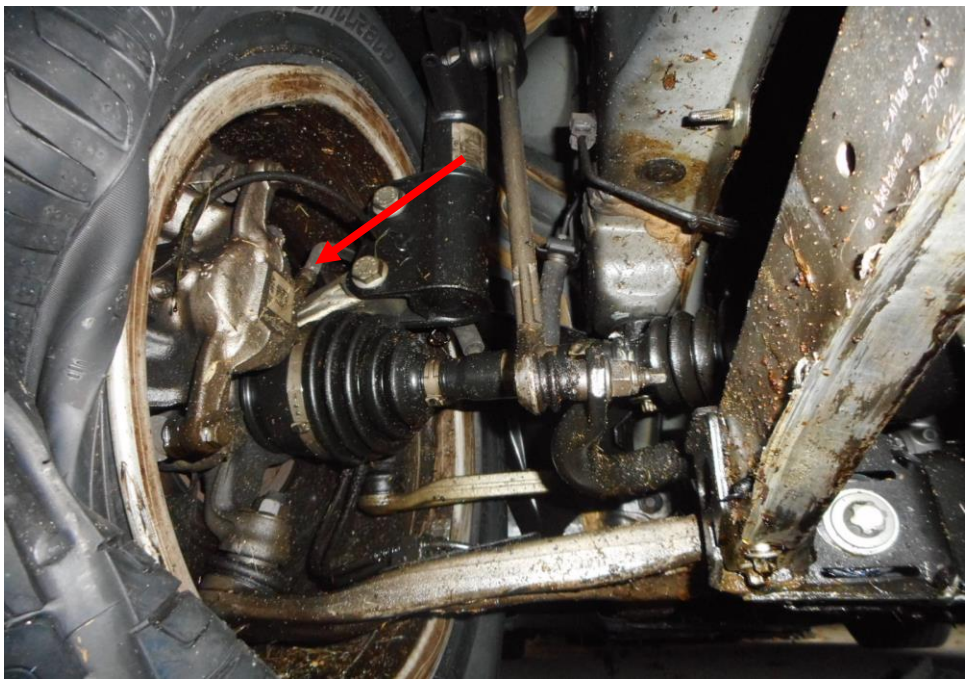


Photo 22 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage. The components in this area was cover in engine oil due to the damaged engine oil as a result of the accident.

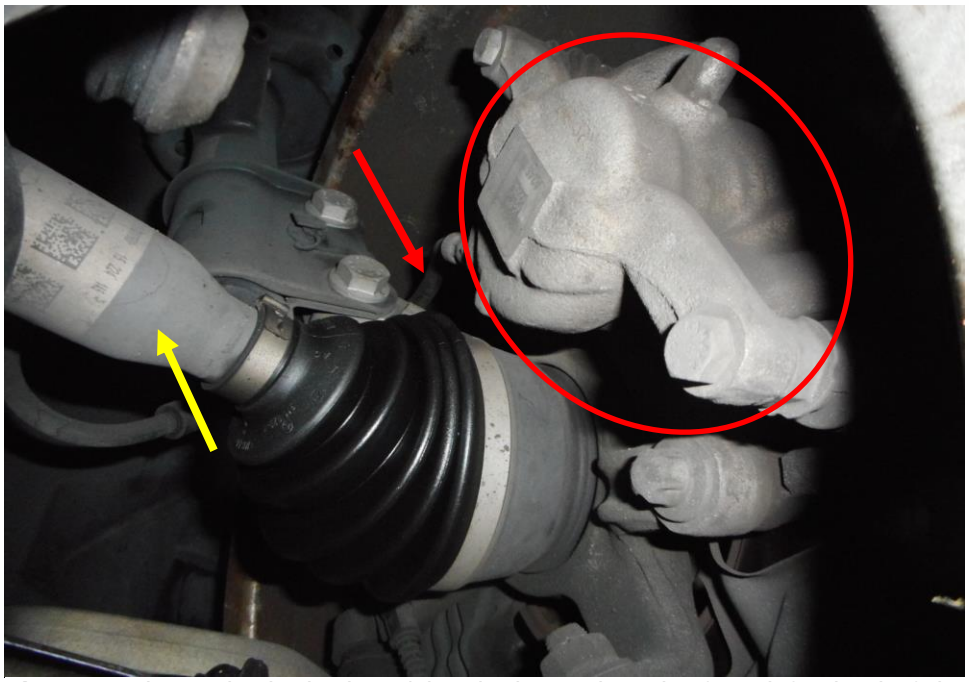


Photo 23 shows the brake hose/pipe (red arrow) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled) and drive shaft (yellow arrow), brake booster, brake pedal, drive shaft etc had revealed all to be intact and without visible damage.

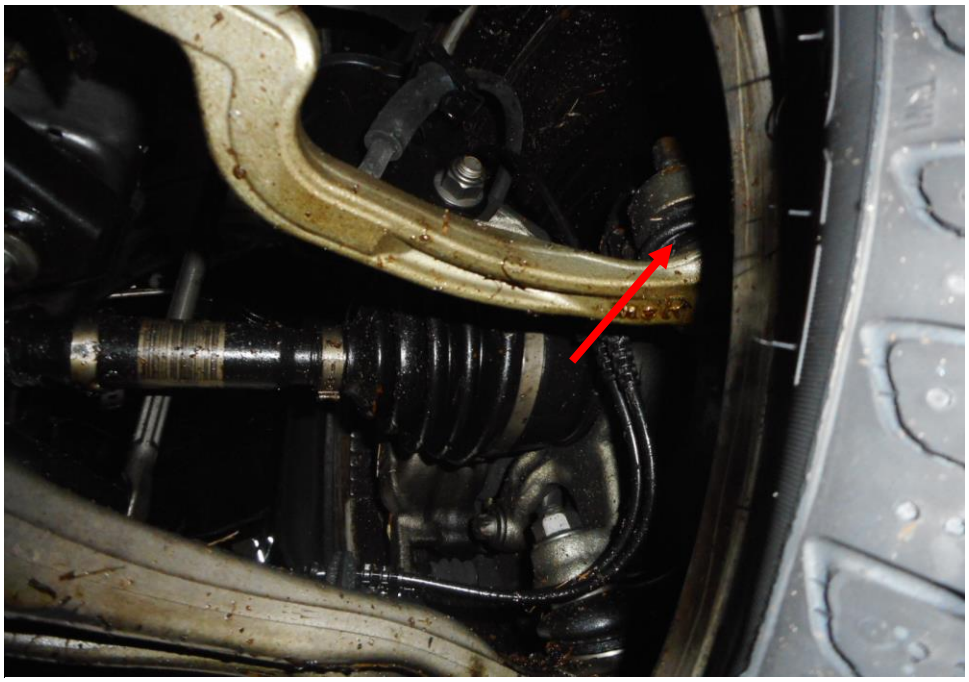


Photo 24 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod (red arrow). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition at 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. The components in this area was cover in engine oil due to the damaged engine oil as a result of the accident.

Photo 25 shows the various undercarriage components at the front left wheel of the Motor Car, the steering tie rod (red 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.

Electronic Safety / Warning Indicators

12. The Motor Car's Motor Car's automatic self-test of the functionality of its various electronic operating systems was not able to be conducted as there engine system damaged as a result of the accident. (Unable to be started & unsafe to operate)

Seat Belts

13. 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

14. 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 (Unable to be started & unsafe to operate as a result of the accident.).

Conclusion

15. 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.

16. However static brake tests able to be conducted and 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.

17. The damaged to the front left, front right and rear right tyres of the Motor Car were observed to be caused by impact Motor Car sustained from the collision as a result of the accident.

18. The front left, front right and rear right tyres of the Motor Car were observed to be damaged, however the rear left tyre 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 rear left tyre. The 4 tyres were also observed to with remaining tread depth of approximately 4.3mm to 8.2mm.

Sherwin Beh
Technical Investigator

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