

Your Ref: TP/IP/23721/2020
Our Ref : CI/TPD20006182/P

19th June 2020

General Investigation Team

Traffic Police Department
Singapore Police Force
10 Ubi Avenue 3
Singapore 408865

MECHANICAL INSPECTION REPORT OF MOTOR CAR SCN 6831U

1. I refer to your request on 10th June 2020 to conduct a physical inspection of a Motor Car bearing registration number SCN 6831U (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 23rd May 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 15th 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

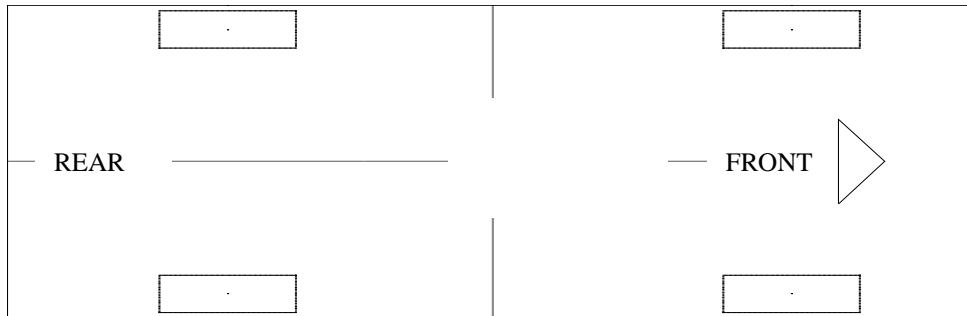
4. The mileage of the Motor Car at the time of my inspection was 209,990km.
5. The Motor Car was observed to have sustained damage at its right portion. Its front bumper, front right fender and right body panels were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

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

Bridgestone 205/55R16 (6.3mm)
(Deflated)

Goodyear 205/55R16 (5.5mm)



Bridgestone 205/55R16 (6.1mm)

Goodyear 205/55R16 (5.7mm)
(Deflated)

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 mileage of the Motor Car at the time of my inspection. The mileage observed was 209,990km.



Photo 2 shows a general view of the Motor Car's right body at the time of my inspection. The Motor Car was observed to have sustained damage at its right portion. Its front bumper, front right fender and right body panels 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 right portion at the time of my inspection. The Motor Car was observed to have sustained damage at its front bumper (arrowed) and front right fender (circled) as a result of the accident.



Photo 4 shows the close up view of the Motor Car's front right body at the time of my inspection. The Motor Car was observed to have sustained damage at its right rear view mirror (arrowed) right body panel (circled) 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 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 7 shows the condition of the front right tyre of the Motor Car, which was observed to be in unserviceable condition as it was damaged as a result of the accident with remaining tread depth of approximately 5.7mm.



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 6.1mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

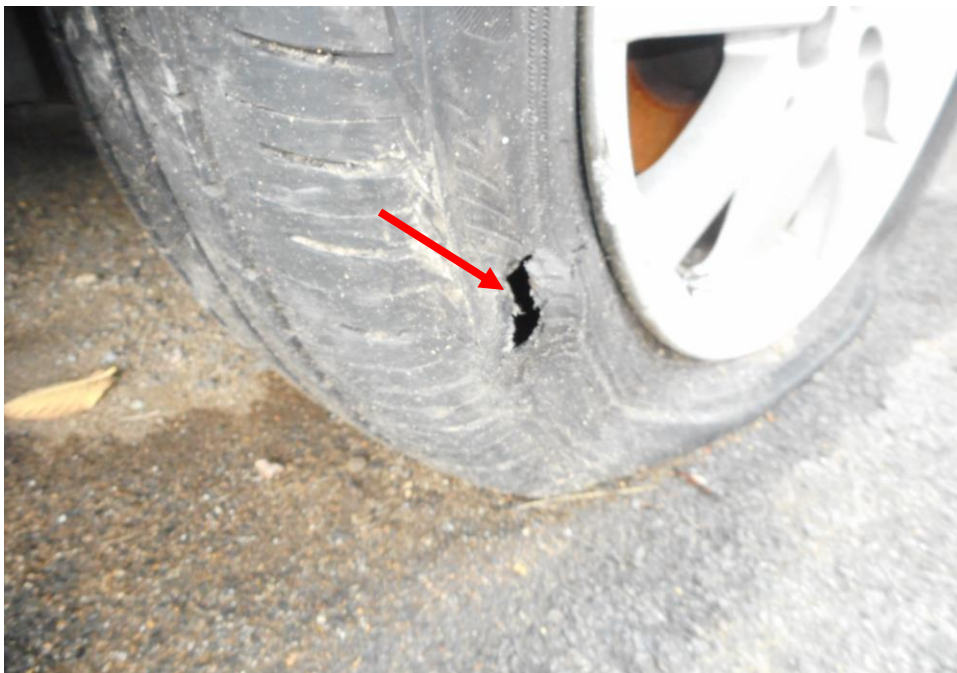


Photo 9 shows the condition of the rear left tyre of the Motor Car, which was observed to be in unserviceable condition as the tyre was observed with a cut mark (arrowed) at the side wall of the tyre. The remaining tread depth of the tyre was approximately 6.3mm.

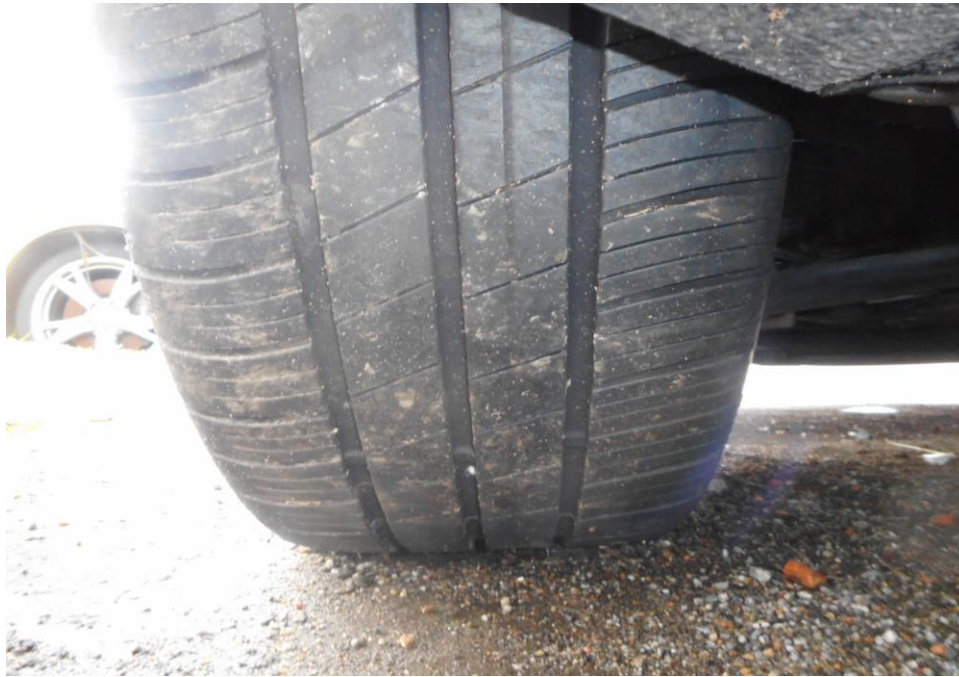


Photo 10 shows the condition of the front left tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 5.5mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the Motor Car's 3 tyres.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Car, I had observed all the parts and components inside the engine compartment to be intact and unaffected by the accident. 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.
9. 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.
10. 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 – 15 below.



Photo 11 shows a general view of the Motor Car's engine compartment. 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 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.

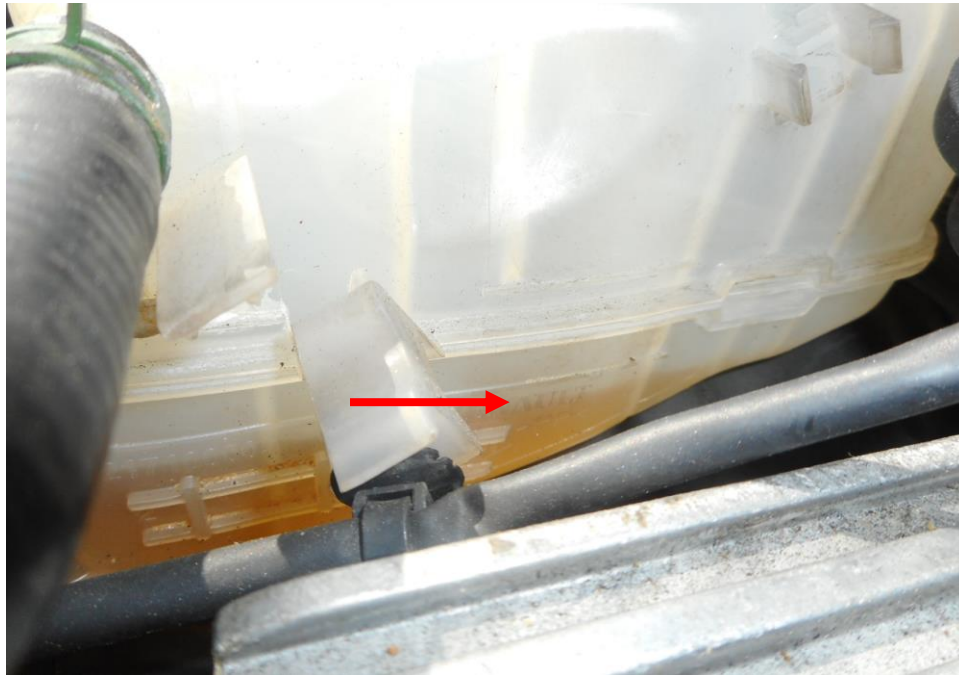


Photo 13 shows checks being carried out to the engine coolant of the Motor Car at the time of my inspection. The engine coolant was observed to be of sufficient level (arrowed) and without any visible contamination.

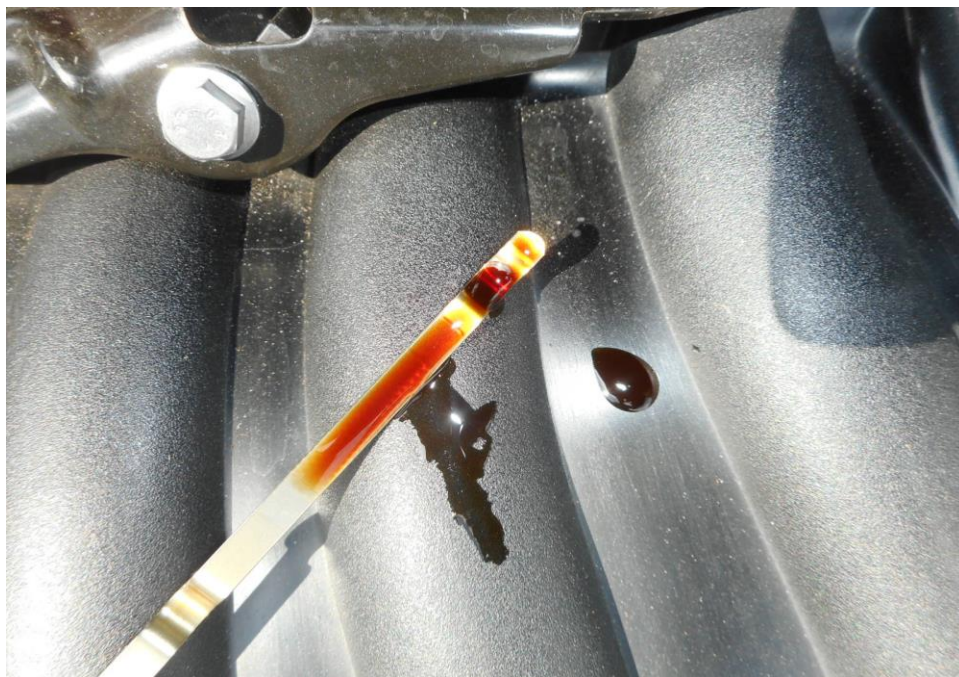


Photo 14 shows the engine oil dip stick of the Motor Car at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.



Photo 15 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

11. 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.
12. Static test on the steering system of the Motor Car also revealed abnormality to the steering system. I experience abnormal free play and/or other resistance when turning the steering wheel left and right to full lock positions. 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. However, the tie rod at the front right wheel was observed to be damaged as a result of the accident. See photo 16 - 21 below.



Photo 16 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.

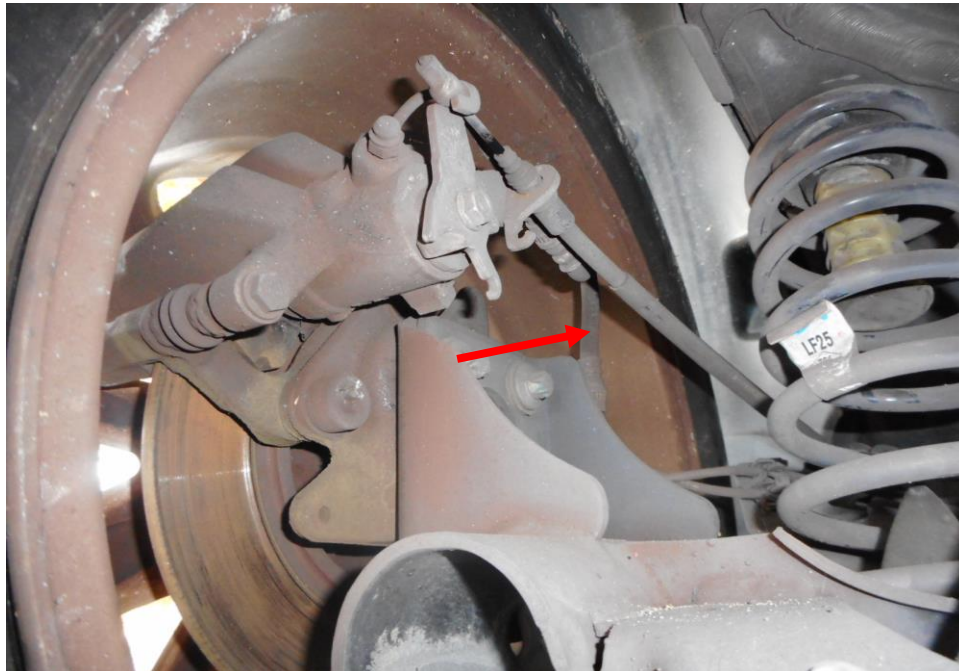


Photo 17 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.



Photo 18 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.

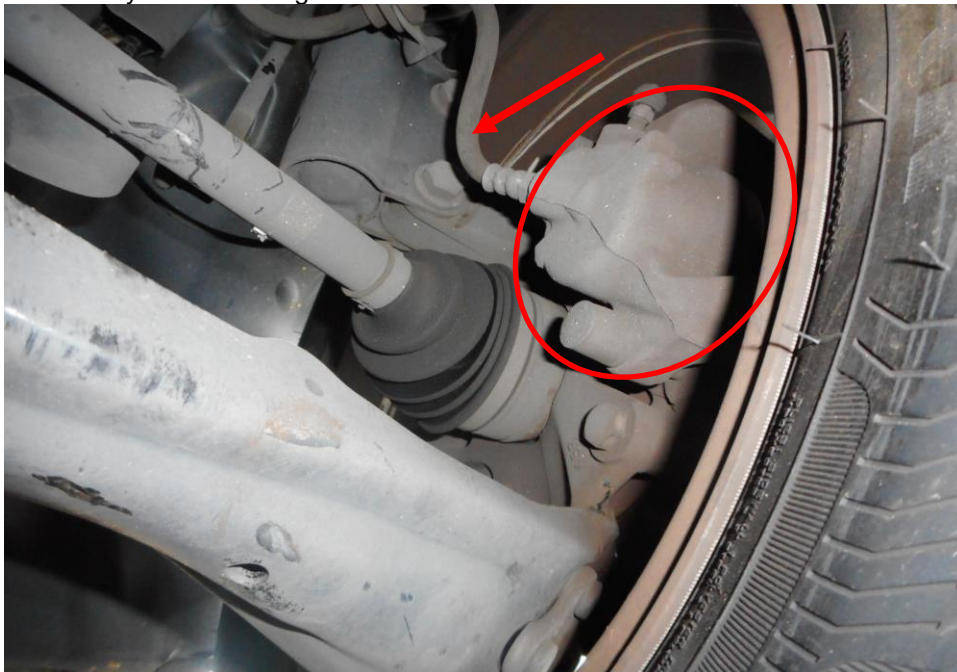


Photo 19 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without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

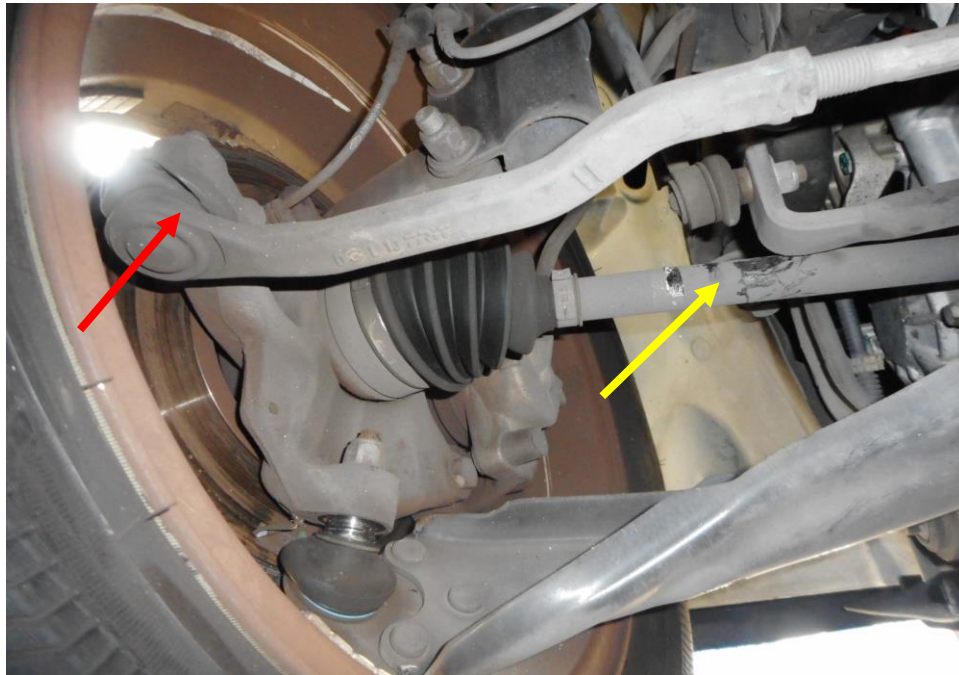


Photo 20 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod (red arrow) and drive shaft (yellow arrow). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to 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 left wheel of the Motor Car.



Photo 21 shows the various undercarriage components at the front right wheel of the Motor Car, the steering tie rod (red 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 electronic operating systems like the Anti-Lock Brake System (ABS) and Supplemental Restraint System (SRS) during cranking of the engine had indicated that the system were in working condition and without abnormality. This can be established from the warning lights disappearing from the instrument panel after the self-test. See photo 22 & 23 below.



Photo 22 shows the warning light for Anti-Lock Brake System (ABS) and Supplemental Restraint System (SRS) (arrowed) appearing on the instrument panel of the Motor Car during the self-test of its various electronic operating systems when its engine was cranked.



Photo 23 shows no warning lights illuminated on the instrument panel of the Motor Car after the engine was cranked. This would suggest that there was no abnormality to the electronic operating system of the Motor Car, like the ABS and SRS etc.

Seat Belts

14. 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

15. A 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 extent of damage that it had sustained (Steering system of the Motor Car damage as a result of the accident.).

Conclusion

16. For this particular case, from my physical inspection of the Motor Car, the steering system was likely damaged as a result of the accident and the extent of damage that it had sustained had prevented me from carrying out any operational test, however it appears that its engine system, transmission system and 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.
17. The front right and rear left tyres of the Motor Car were observed to be deflated however the other 2 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 2 tyres. The 4 tyres were also observed to with remaining tread depth of approximately 5.5mm to 6.3mm.



Sherwin Beh

Technical Investigator



Ang Bryan Tani

AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA

Senior Technical Investigator

Technical Investigation & Reconstructionist (SAE-A)

DISCLAIMER OF LIABILITY TO THIRD PARTIES: - This Report is made solely for the use and benefit of the Client named on the front page of this Report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part does so at his or her own risk.