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Your Ref: TP/IP/39835/2020
Our Ref : CI/TPD20011392/P

23rd November 2020

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SLD 8602Y

1. I refer to your request on 28th September 2020 to conduct a physical inspection of a Motor car bearing registration number SLD 8602Y (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 14th September 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 23rd November 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.

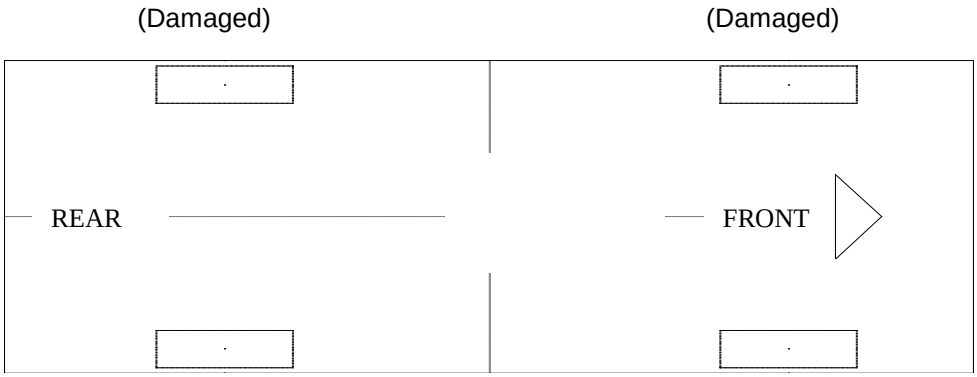
General Condition

4. The mileage of the Motor car at the time of my inspection was 60,103km.

5. The Motor car was observed to have sustained damage at its front and left portion. Its front windscreen, front bumper, front left fender and front left headlamp were amongst the body parts that were damaged as a result of the accident. The Supplemental Restraint System (SRS) was also activated as a result of the accident.

Tyres and Wheel Rims

6. The condition of the Motor Car's front left and rear left tyre was observed to be damaged. However, the front right and rear right 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 2 tyres. The 2 tyres were also observed to be sufficiently inflated for vehicular operation. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-



Pirelli 225/45 R17 (4.8mm)

Pirelli 225/45 R17 (4.4mm)

7. The 4 tyres were observed to be wrapped around standard alloy wheel rims, however the front left and rear left wheel rims were found to be damaged. See photo 1 – 12 below.

Photo 1 shows the mileage of the Motor Car at the time of my inspection. The mileage observed was 60,103km.

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 and left portion. Its front windscreen, front bumper, front left fender and front left headlamp 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 body at the time of my inspection. The Motor car was observed to have sustained damage at its front portion. 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 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), front left headlamp (yellow arrow) and front left fender (circled) 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 rear portion of the Motor Car was observed to have been undamaged 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 undamaged by the accident.

Photo 7 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 8 shows the condition of the front left tyre of the Motor Car, which was observed to be in unserviceable condition. The tyre and alloy wheel rim was observed to be damaged as a result of the accident.

Photo 9 shows the condition of the rear left tyre of the Motor Car, which was observed to be in unserviceable condition. The tyre and alloy wheel rim was observed to be damaged as a result of the accident.

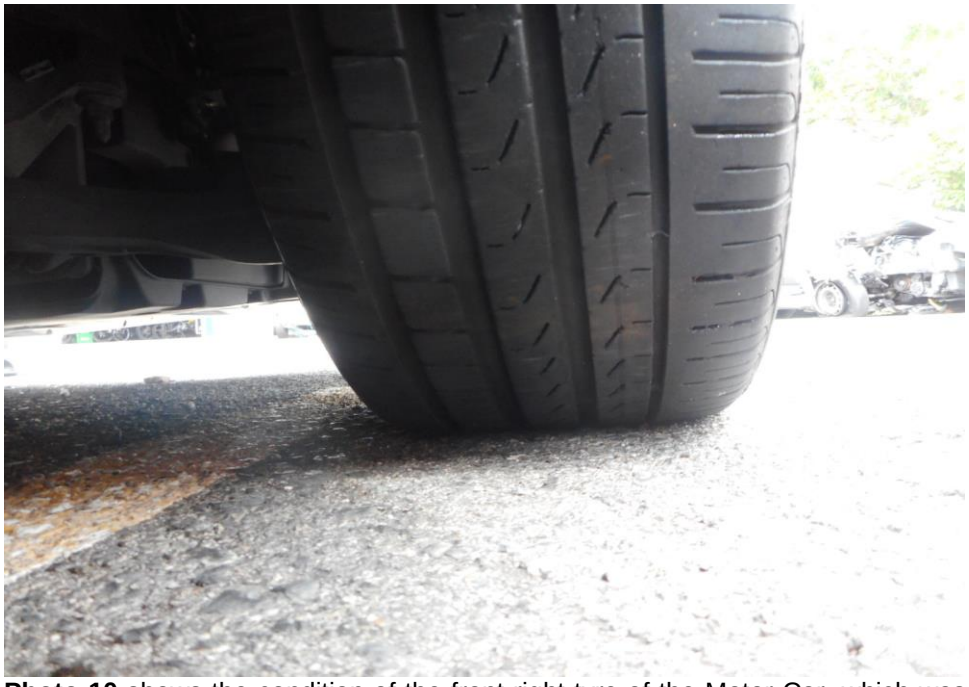


Photo 10 shows the condition of the front right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 4.4mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

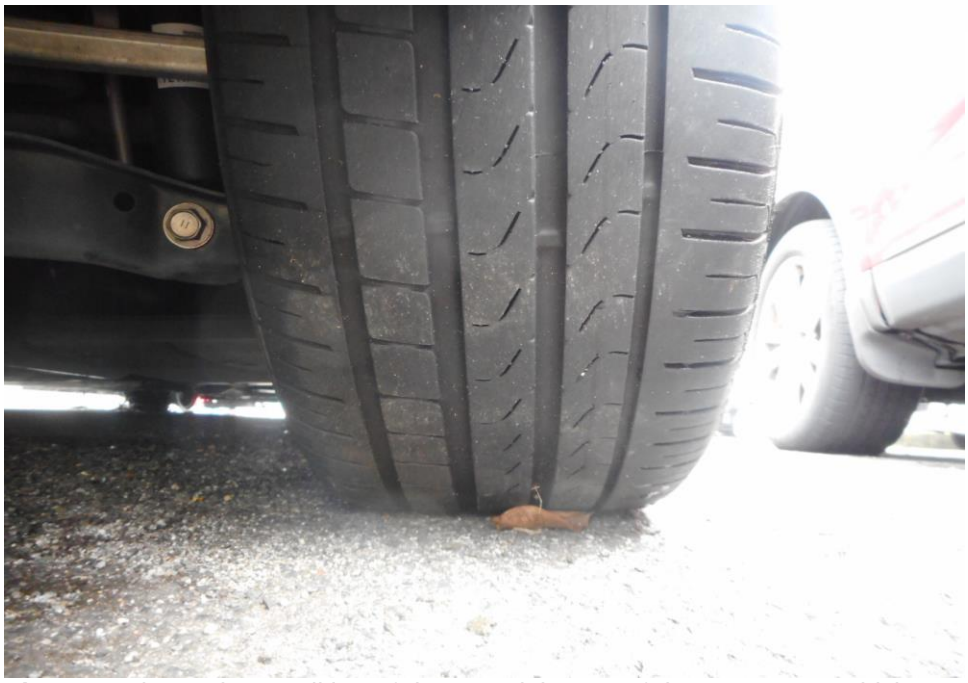


Photo 11 shows the condition of the rear right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 4.8mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 12 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. 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 13 – 17 below.

Photo 13 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 14 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 15 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.

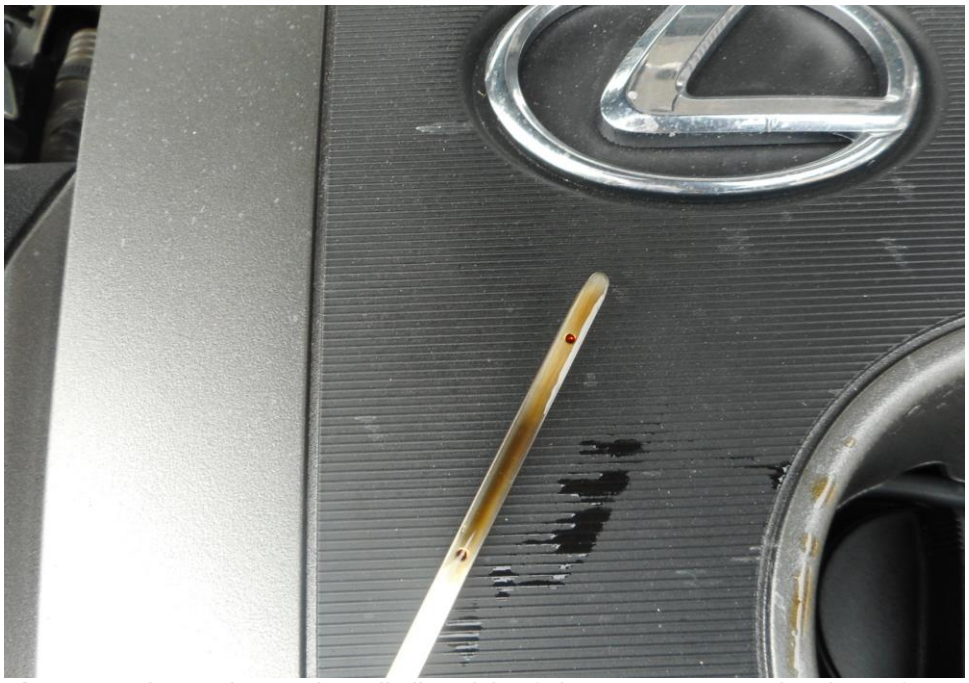


Photo 16 shows the engine oil dip stick of the Motor Car at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

Photo 17 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. For this inspection, I was not able to conduct any tests on the steering system of the Motor Car due to the damages of the left front and rear wheel rims and its tyres had sustained as a result of the accident. However, my visual examination of its steering rack and pinion, tie rods, tie rod ends and ball joints were observed to be intact and old stain was observed on the surface of both front left and right tie rod ends and ball joints.

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. See photo 18 - 24 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 caplier (arrowed) at the rear left wheel of the Motor Car. No leakage of brake fluid was observed on the surface. 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.

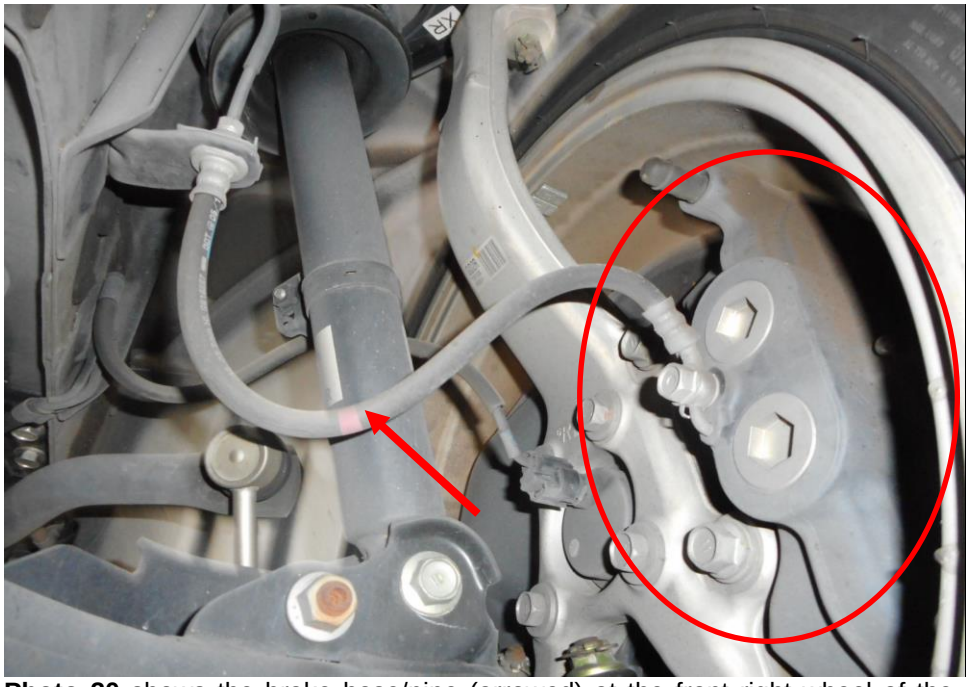


Photo 20 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

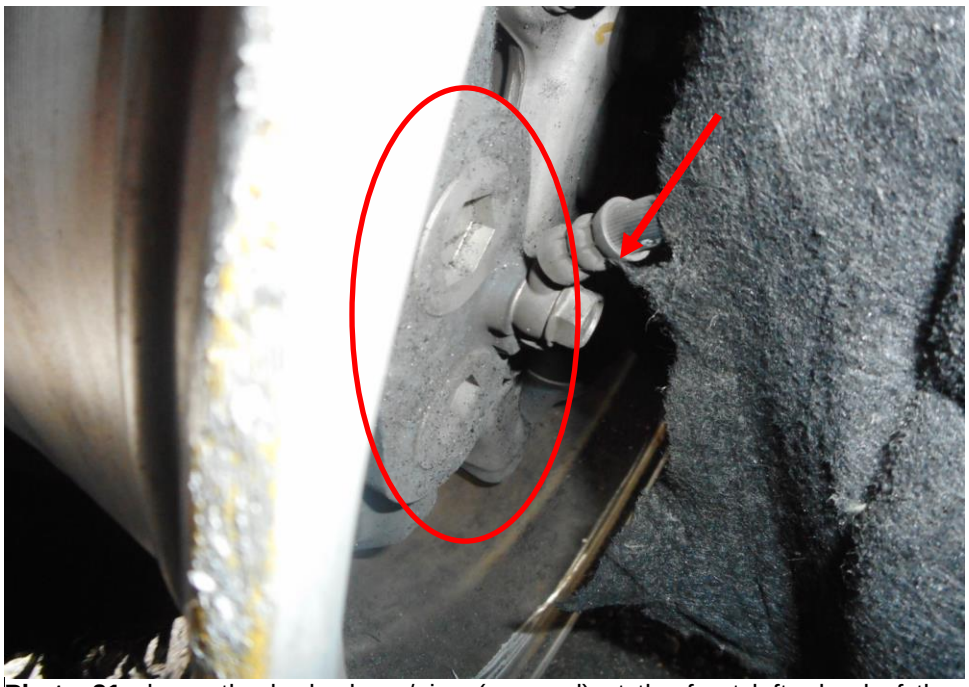


Photo 21 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without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

Photo 22 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod, tie rod end and ball joints (arrowed) was observed to be intact and not damaged by the accident. However, old stain was observed on the surface of the tie rod end and ball joint.

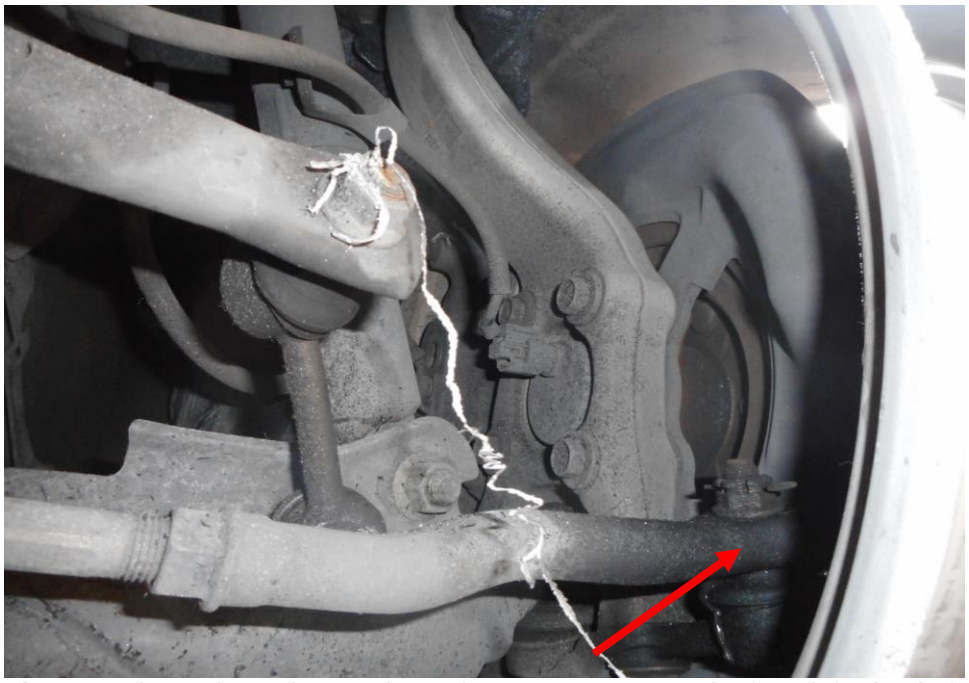


Photo 23 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod, tie rod end and ball joints (arrowed) was observed to be intact and not damaged by the accident. However, old stain was observed on the surface of the tie rod end and ball joint.

Photo 24 shows the various undercarriage components at the rear left wheel of the Motor Car, in particular the drive shaft (yellow arrow). 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.

Electronic Safety / Warning Indicators

13. The Motor Car's Motor Car 's automatic self-test of the functionality of its electronic operating systems like the Anti-Lock Brake System (ABS) and Electric Power Steering System (EPS), Supplemental Restraint System (SRS), Traction Control (TC) and Tyre Pressure Monitoring System (TPMS) 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. However, the Supplemental Restraint System (SRS) and the Tyre Pressure Monitoring System (TPMS) light remaining illuminated there is due to the deployment of the airbag and the damaged tyres of the Motor Car. See photo 25 & 26 below.

Photo 25 shows the warning light for Anti-Lock Brake System (ABS) and Power Steering System (EPS), Supplemental Restraint System (SRS), Traction Control (TC) and Tyre Pressure Monitoring System (TPMS) (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 26 shows the Supplemental Restraint System (SRS) and the Tyre Pressure Monitoring System (TPMS) lights remained illuminated on as the result of the deployment of the airbag and due to the damaged tyres. However, there was 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, EPS, and TC etc.

Seat Belts

14. The front right seat belt of the “Motor Car” were worn at the material time of accident as the respective pre-tensioners that were fitted at the side of each seat was activated upon the material time. See photo 27 below

Photo 27 shows 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.

Operational Behaviour of the Motor Car

15. 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 the left front and rear wheel rims and tyres had sustained 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.

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

18. In our opinion, the old stain was observed on the surface of the front left and right tie rods and ball joints of the Motor Car does not contribute to the accident as the overall component was still observed to be intact without damage.

19. Both the right front and rear 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 2 tyres. The 2 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 4.4mm and 4.8mm.

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