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Your Ref: TP/IP/50553/2020
Our Ref : CI/TPD21000233/P

18th February 2021

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SKF 9185D

1. I refer to your request on 5th January 2021 to conduct a physical inspection of a Motor car bearing registration number SKF 9185D (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 17th November 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 10th February 2021 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

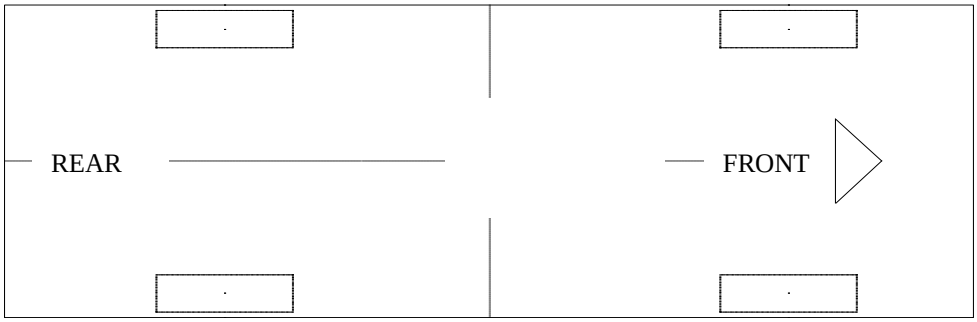
4. The mileage of the Motor car was not recorded as the engine was unable to be started despite multiple attempts to jumpstart the engine at the time of our inspection.

5. The Motor car was observed to have sustained damage at its left portion. Its front left fender were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

6. The Motor Car's front left tyre and rim had broken off as a result of the accident. However, all 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:-

Pirelli 285/35 R20 (5.5mm) Pirelli 245/35 R20 (5.7mm)



Pirelli 285/35 R20 (5.7mm) Pirelli 245/35 R20 (6.1mm)

7. The 4 tyres were observed to be wrapped around standard alloy wheel rims, the front left wheel rims were found to be damaged and broken off as a result of the accident. However the front right and both rear rims were found to be without any damage. See photo 1 – 10 below.

Photo 1 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 2 shows a general view of the Motor Car's front body at the time of my inspection. The front 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 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 4 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 sustained damage to its front left fender were amongst the body part that were damaged as a result of the accident.

Photo 5 shows a close up view of the Motor Car's front portion at the time of my inspection. The left portion of the Motor Car was observed to have sustained damage to its front left fender (circled) were amongst the body part that were damaged as a result of the accident.

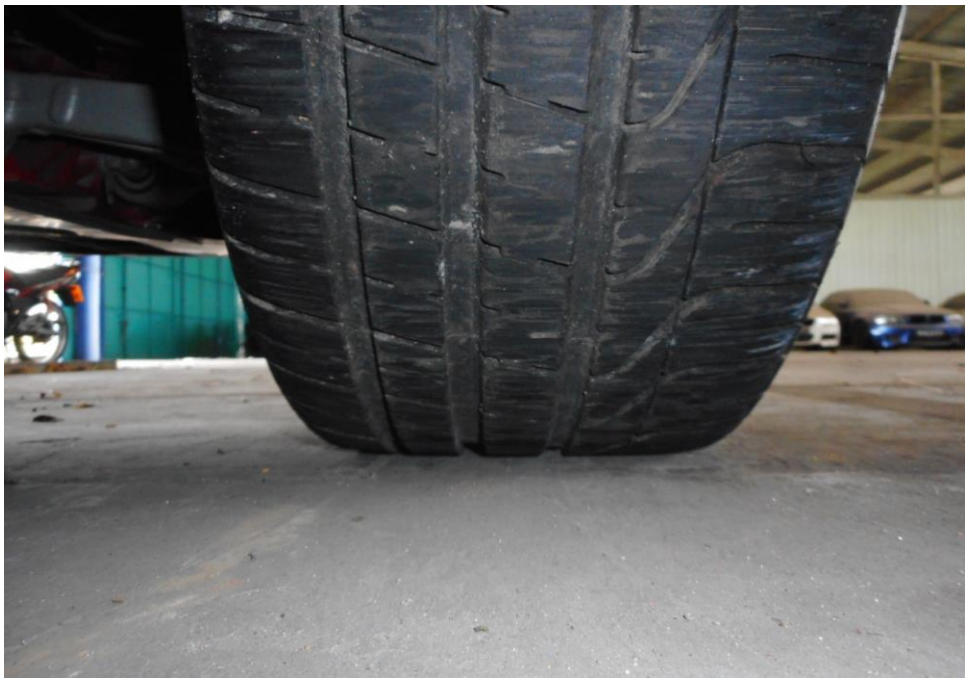


Photo 6 shows the condition of the front right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 6.1mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 7 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 5.7mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 8 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 5.5mm. 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 front left tyre and rim of the Motor Car, which was observed to be broken off as a result of the accident.

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 5.7mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

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, power steering 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.

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 – 16 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.

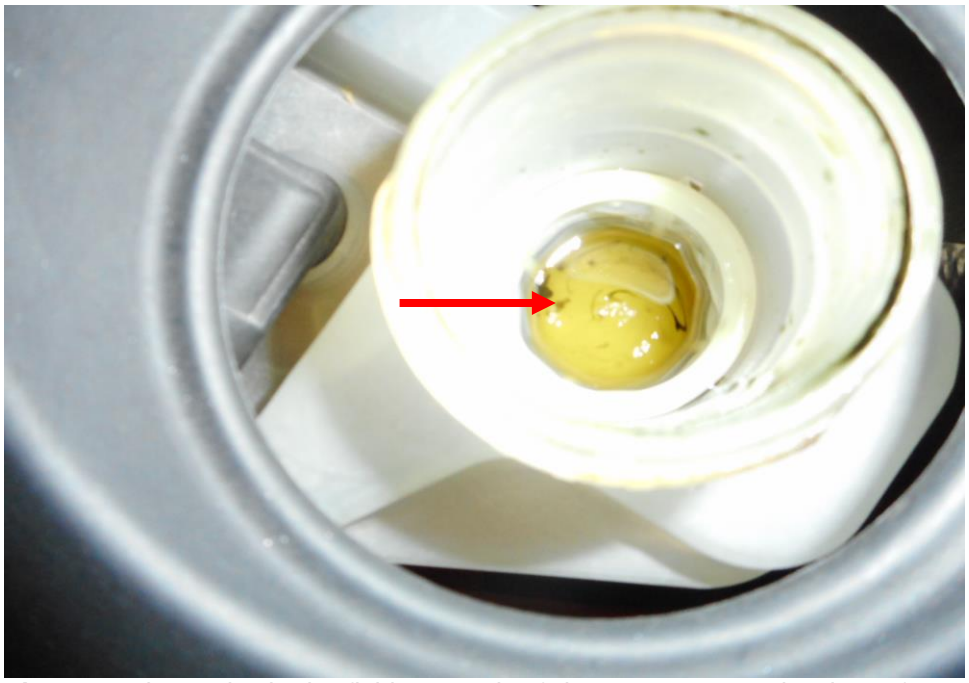


Photo 12 shows the brake fluid reservoir of the Motor Car at the time of my inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.

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.

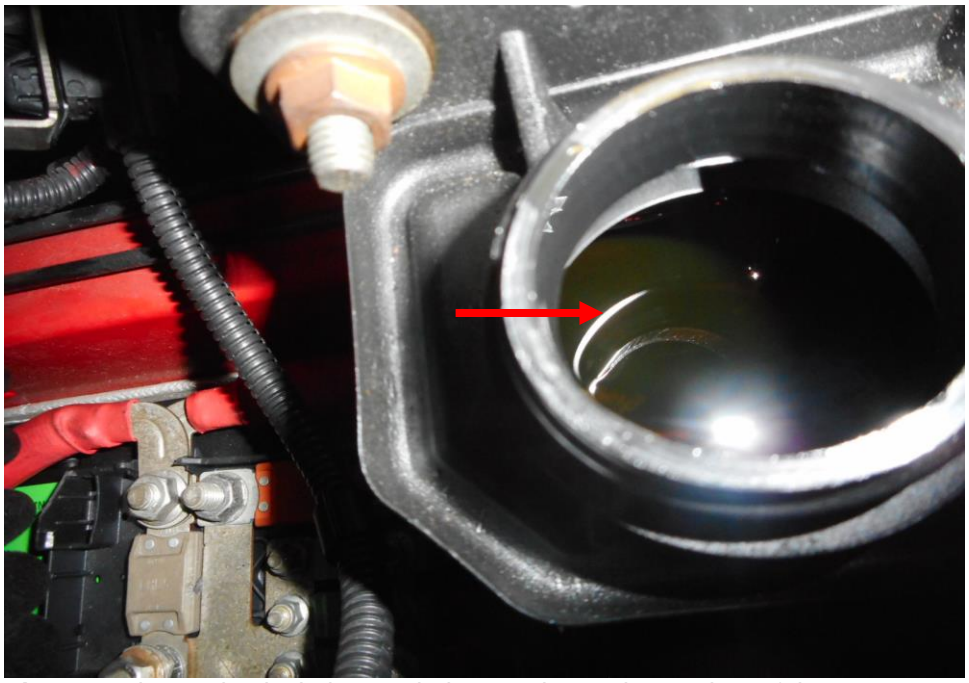


Photo 14 shows checks being carried out to the engine coolant of the Motor Car at the time of my inspection. The engine coolant was observed to be of sufficient level (arrowed) and without any visible contamination.

Photo 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.

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 Motor Car running on electric power steering (EPS) which requires the Motor Car to be started. The engine was unable to be started up despite multiple attempts to jump start it.

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.

13. My visual examination of the various steering and braking components which had included the rack and pinion, brake hoses and brake pipes had revealed that these components were all generally intact. However the rear left tie rod was found to be damaged as a result of the accident. See photo 17 - 26 below.

Photo 17 shows the use of a jump starter (arrowed) at the battery of the Motor Car. Despite multiple attempts in jumpstarting the Motor Car, the engine was not able to be started up.

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. 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.

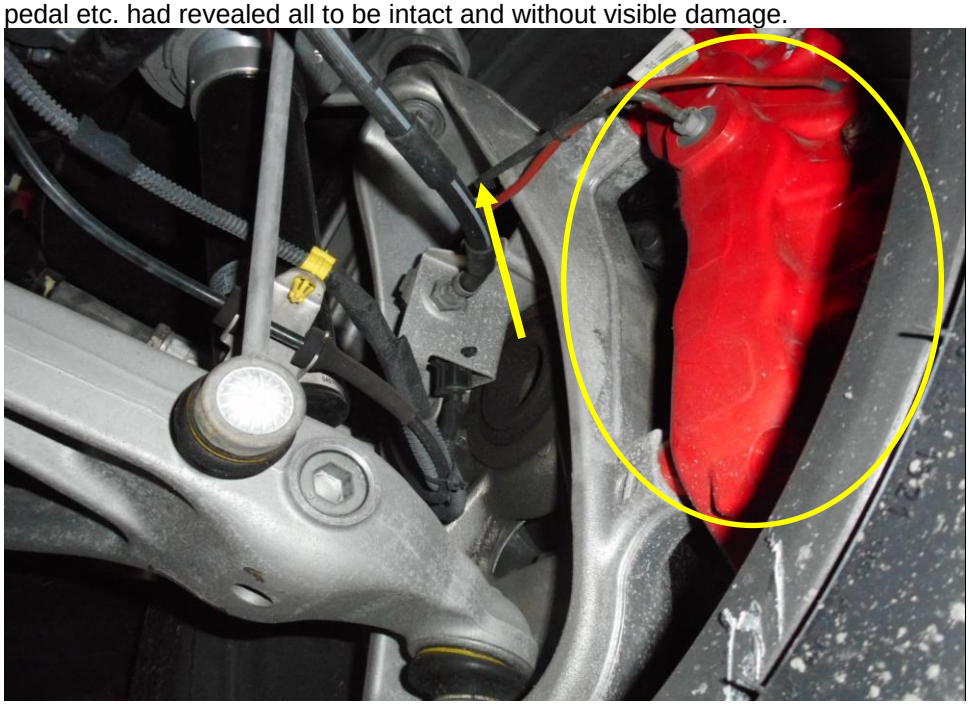


Photo 20 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without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

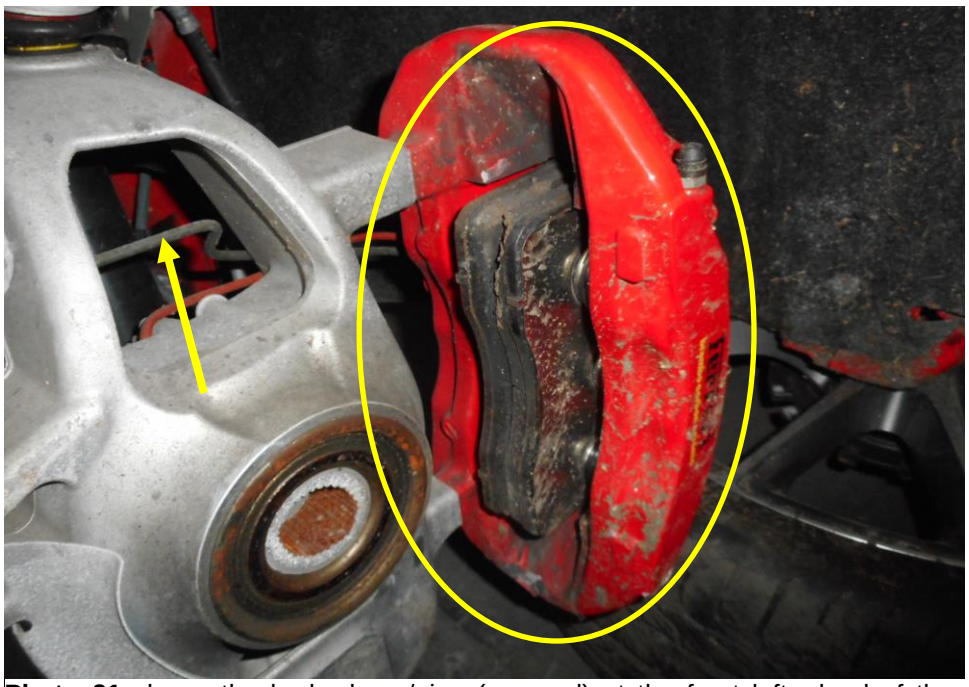


Photo 21 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without 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 (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, which had included the steering tie rod (arrowed). The various undercarriage components of the Motor Car were all found to be intact without any visible damage.

Photo 24 shows the various undercarriage components at the rear left wheel of the Motor Car, which had included the rear tie rod (arrowed) were found to be intact without any visible damage.

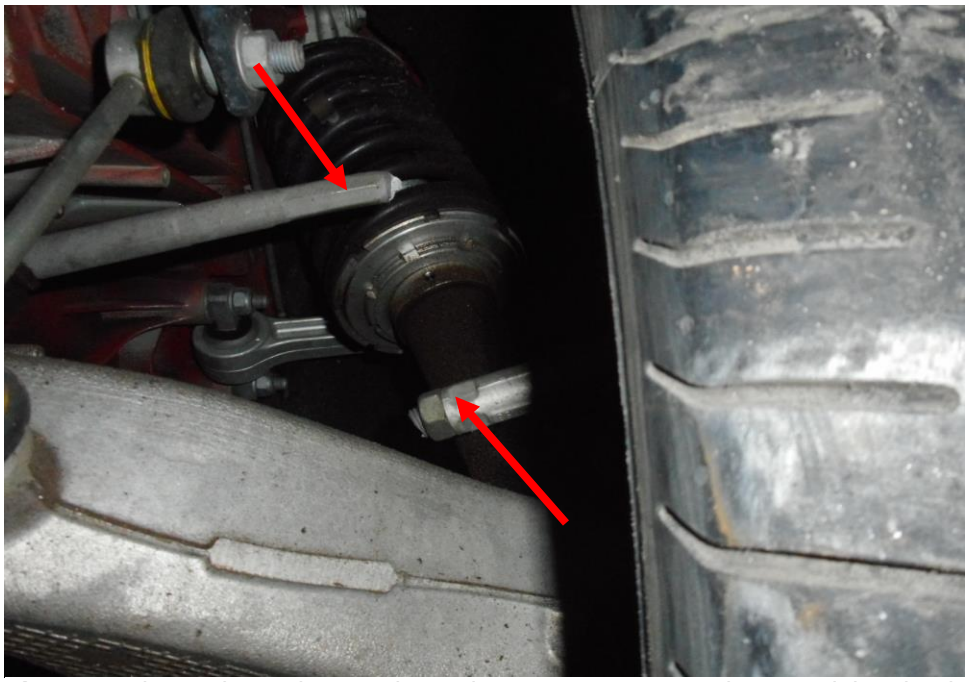


Photo 25 shows the various undercarriage components at the rear right wheel of the Motor Car, in particular the rear tie rod (arrowed) was observed to be damage as a result of the accident.

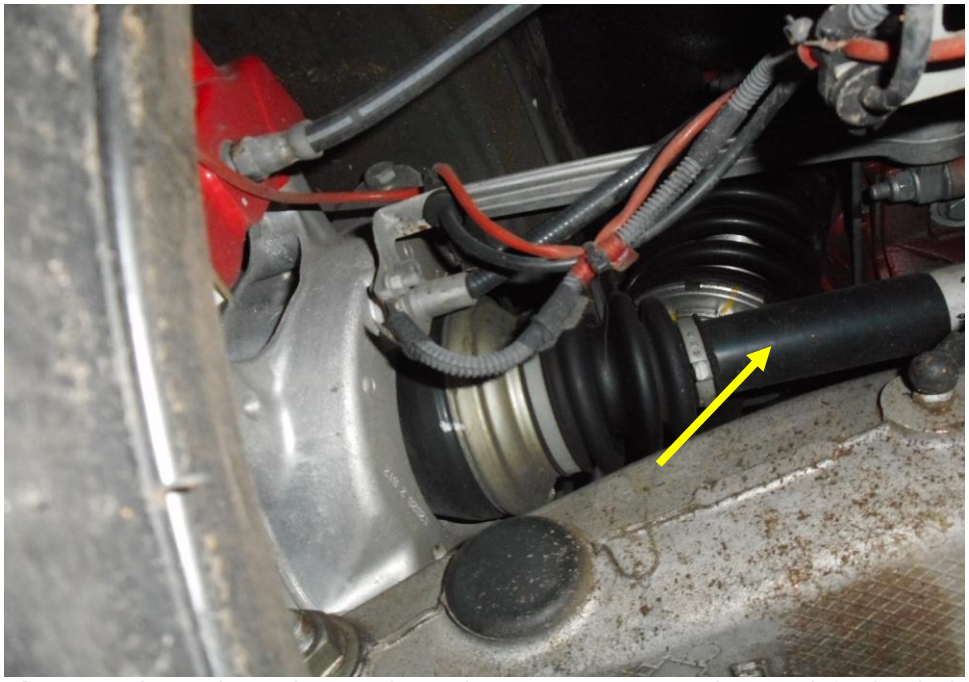


Photo 26 shows the various undercarriage components at the rear left wheel of the Motor Car, in particular the drive shaft (yellow arrow). The various undercarriage components of the Motor Car were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Electronic Safety / Warning Indicators

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 of the Motor Car was not able to be started up.

Seat Belts

15. The right seat belt 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. The left seat belt of was 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 and 28 below.

Photo 27 shows that the seat belt on the right seat were able to be fastened securely into the respective pre-tensioners that were fitted at the sides of the each seat.

Photo 28 shows that the seat belt on the left 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. The airbag was also deployed as of result of the accident.

Operational Behaviour of the Motor Car

16. 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 as the engine was not able to be started 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) and/or static test(s) to its engine system, transmission system, steering system and suspension system.

18. 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.

19. Although the front left tyre and rims had broken off as a result of the accident, the 4 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 4 tyres. The 4 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 5.5mm and 6.1mm.

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