

You're Ref: TP/IP/12302/2022  
Our Ref: CI/TPD22006181/P

6<sup>th</sup> July 2022

**General Investigation Team**

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

**MECHANICAL INSPECTION REPORT OF MOTOR CAR SJN 5560A**

1. I refer to your request on 28<sup>th</sup> June 2022 to conduct a physical inspection of a Motor Car bearing registration number SJN 5560A (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 21<sup>st</sup> May 2022.
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 29<sup>th</sup> June 2022 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**

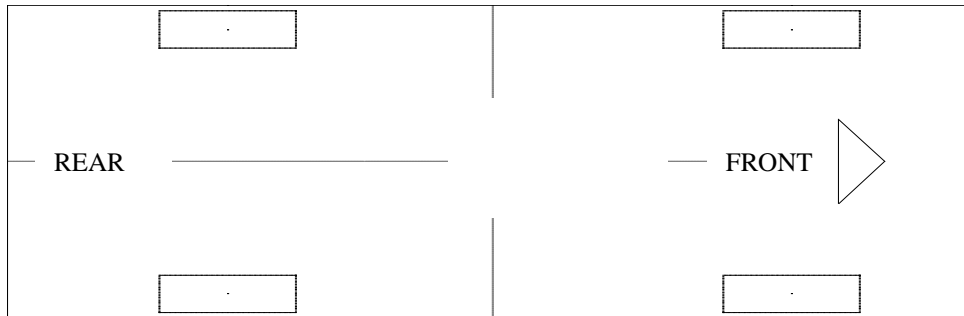
4. The mileage of the Motor Car at the time of my inspection was 182,431km.
5. The Motor Car was observed to have sustained damage at its front portion. Its front bonnet, front right fender, front right headlamp and its front bumper was amongst the body parts that were also damaged as a result of the accident. The Supplemental Restraint System (SRS) was activated 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:-

Nexen 225/45R17 (4.7mm)

Nexen 225/45R17 (5.1mm)



Continental 225/45R17 (6.4mm)

Nexen 225/45R17 (5.3mm)

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 – 13 below.



**Photo 1** shows the mileage of the Motor Car at the time of my inspection. The mileage observed was 182,431km.



**Photo 2** shows the 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 unaffected by the accident.



**Photo 3** shows a general view of the Motor Car's front body at the time of my inspection. The front portion observed to have sustained damage. Its front bonnet, front right fender, front right headlamp and its front bumper was the body parts as well as its various engine components were also damaged as a result of the accident. The airbag of the Supplemental Restraint System (SRS) was activated as a result of the accident.

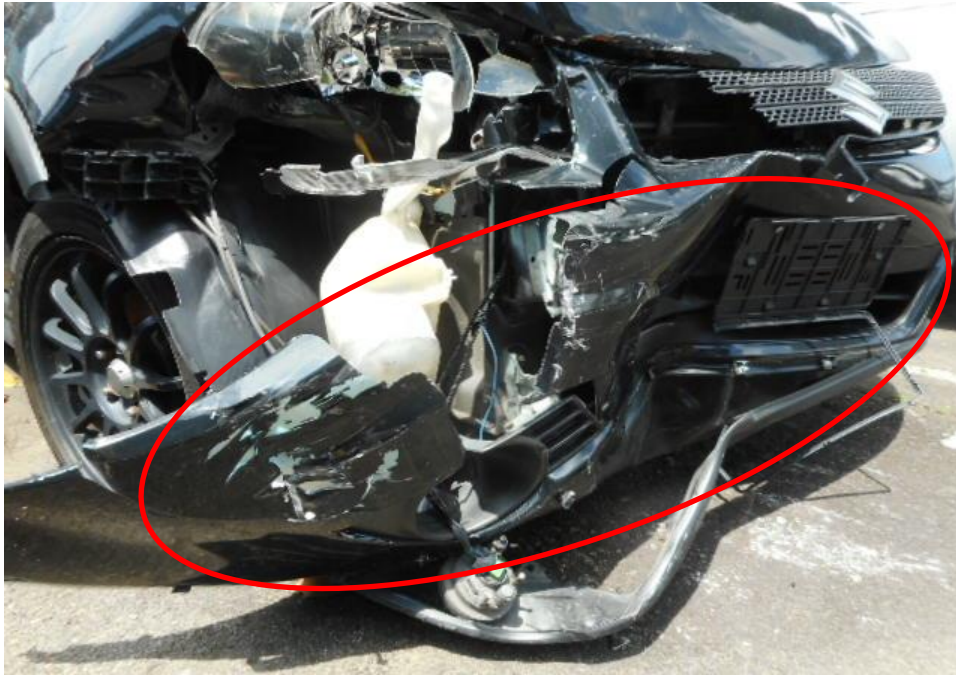




**Photo 4** shows a close up view of the Motor Car's front body at the time of my inspection. The Motor Car was observed to have sustained damage at its front portion. Its front bonnet (circled) was the body part that were damaged as a result of the accident.



**Photo 5** shows a close up view of the Motor Car's front body at the time of my inspection. The Motor Car was observed to have sustained damage at its front portion. Its front right fender (red circle) and front right headlamp (yellow circle) was the body part that were damaged as a result of the accident.



**Photo 6** shows a 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 bumper (circled) was the body part that were damaged as a result of the accident.



**Photo 7** 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 8** shows a general view of the Motor Car's left body at the time of my inspection. The right portion of the Motor Car was observed to have been unaffected by the accident.



**Photo 9** 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 5.3mm. 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 10** 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 6.4mm. 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 left tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 4.7mm. 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 12** 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 5.1mm. 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.



**Photo 13** 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. We were unable to raise the front bonnet of the Motor car to conduct the examination of the Motor Car's engine compartment because the damage caused by the accident had resulted in the damages to the lock mechanism of the bonnet and the structure of the engine compartment. (Unable to open).
9. However, we were able to examine the brake fluid and its brake fluid reservoir were found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids.
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 14 – 16 below.



**Photo 14** shows a close up view of the damaged front bonnet lock mechanism (circled) and the structure of the engine compartment of the Motor Car at the time of my inspection resulting it unable to open a result of the accident. (Unable to open)



**Photo 15** 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 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

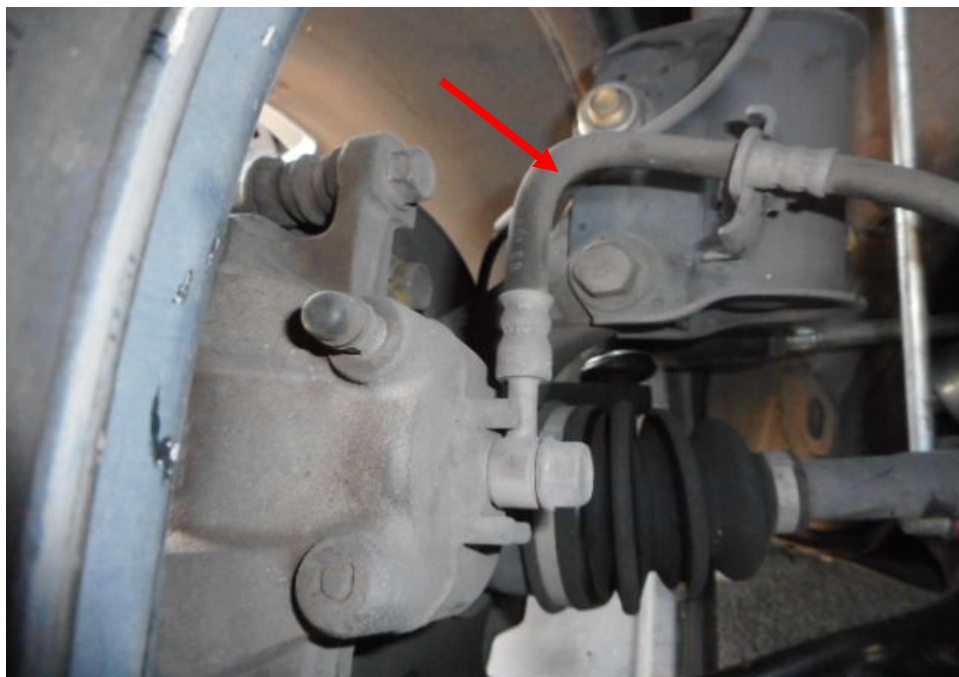
11. Static brake tests conducted on the Motor Car revealed no abnormality. The brake booster had responded well to the various tests conducted. There was also no abnormal movement of the brake pedal when it was depressed. In general, the static brake tests had suggested that there was no internal leakage 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 no abnormality to the steering system. I did not experience any 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 rods, tie rod ends and ball joints revealed that these components were all generally in good condition. See photo 17 - 23 below.



**Photo 17** 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.

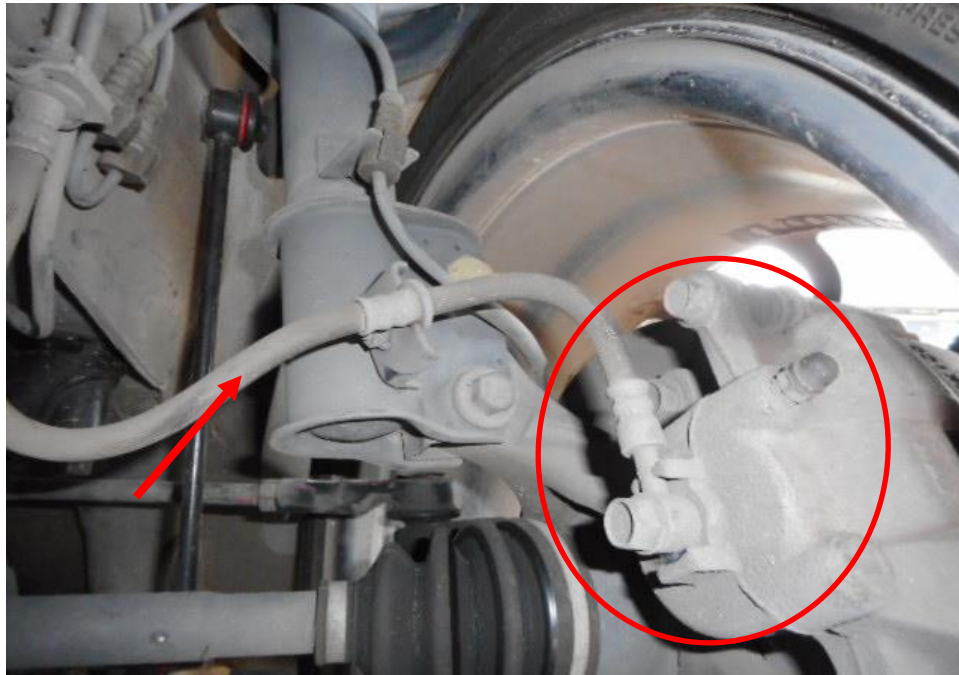


**Photo 18** shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.



**Photo 19** 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.

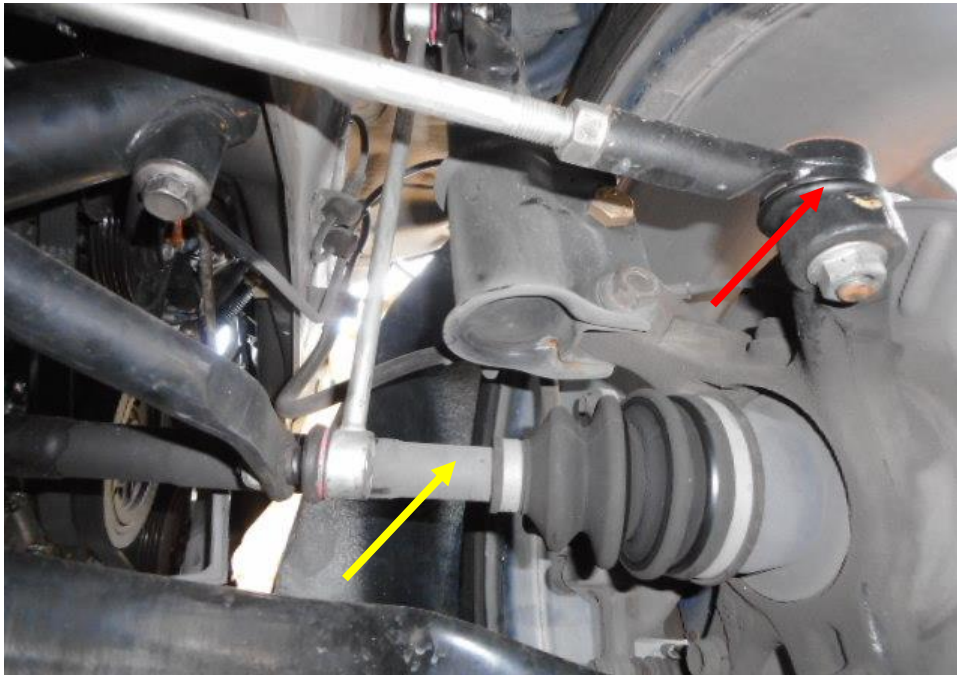




**Photo 20** shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without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



**Photo 21** shows the front right wheel of the Motor Car turned to its full left. During my steering system test, I did not experience any abnormal free play and/or resistance when I had turned the steering wheel towards the left and right. This would suggest that the steering system of the Motor Car was likely to be in serviceable condition at the material time of accident.



**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 the driveshaft (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.

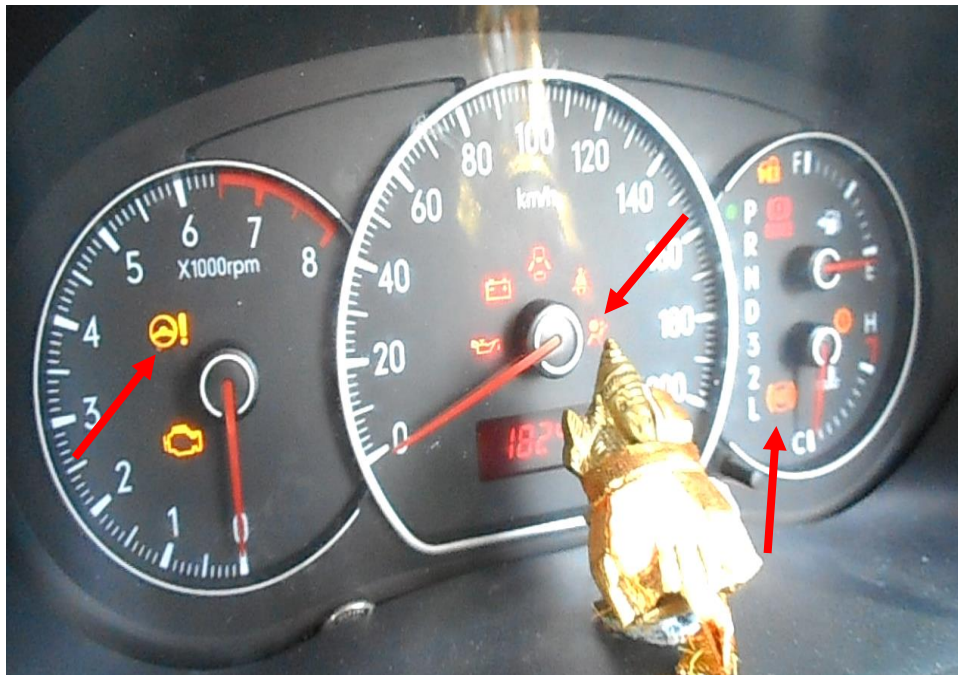


**Photo 23** shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod end (arrowed). The various undercarriage components of the Motor Car were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.



### Electronic Safety / Warning Indicators

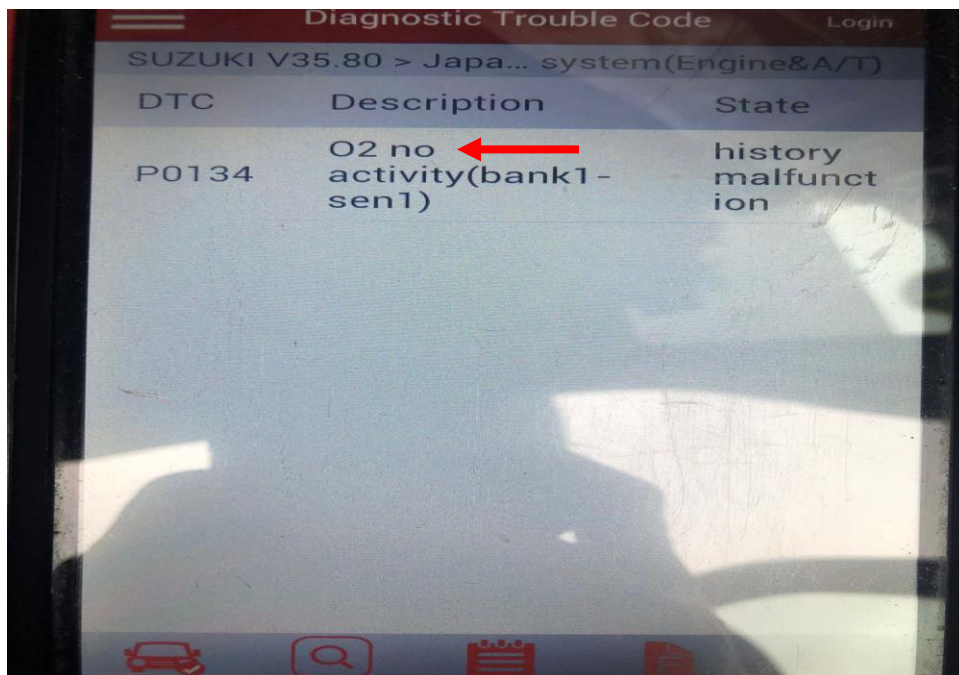
13. The Motor Car's automatic self-test of the functionality of its electronic operating systems like the Anti-Lock Brake System (ABS), Traction Control System (TCS), Electronic Power Steering System (EPS) and Supplemental Restraint System (SRS) during cranking of the engine had indicated that the system were in working condition and without abnormality. This can be established from the warning lights disappearing from the instrument panel after the self-test.
14. The Supplemental Restraint System (SRS) warning light remained illuminated up due to the deployment of the airbag as a result of the accident.
15. We also further observed that the engine light remained illuminated up and we did a diagnostic system test to the Motor Car's electronic system and observed a stored fault code stating a faulty O2 sensor (Oxygen Sensor) which is located on the engine exhaust piping. See photo 24 - 26 below.



**Photo 24** shows the warning light for Anti-Lock Brake System (ABS), Traction Control System (TCS), Electronic Power Steering System (EPS) 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 25** shows the Supplemental Restraint System (SRS) (red arrow) light remained illuminated on due to the deployment of the airbag as a result of the accident after the engine was cranked and we also observed the engine warning light remained illuminated up and this was due to an faulty O2 Sensor (Oxygen Sensor) (yellow arrow) on the engine exhaust piping. However, there was no abnormality to the other electronic operating system of the Motor Car, like the ABS, EPS and TCS etc.



**Photo 26** shows the fault code of the faulty O2 Sensor (Oxygen Sensor) of the engine exhaust piping (arrowed).



**Seat Belts**

16. The front right and left seat belt of the “Motor Car” was not 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 was not 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.



**Photo 28** shows that the seat belt on the left seat was not 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**

17. A short operational test of the Motor Car, to primarily determine whether there was any abnormality to its various operating systems like its engine system, its transmission system, steering system and braking system was subsequently carried out. The test was conducted by driving the Motor Car forward, stopping, before reversing and coming to a stop again.
18. During the operational test, the transmission system of the Motor Car was able to be shifted to drive mode and reverse mode without any difficulty. There was no abnormal sounds heard and/or abnormal behaviour of the Motor Car's engine system. It was able to move forward and backward normally. The braking system was also found to be in working condition as the Motor Car was able to slow down and come to a complete stop upon depressing of the brake pedal. (Refer to photo 2 & 21)
19. In regards to the claimed engine RPM spike and causing the accelerator to react without any driver's input to the accelerator pedal. We did not observed any spikes or abnormal behaviour to the Motor Car during our operational test.

## Conclusion

20. From my physical inspection of the Motor Car, it appears that its engine system, transmission system, steering system and braking system were all in serviceable condition. 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.
21. A short operational test of the Motor Car, which I had conducted, did not produce any sign(s) or symptom(s) to suggest that there was any abnormality to its engine system, its transmission system and braking system.
22. 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 4.7mm to 6.4mm.



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