

Your Ref: TP/IP/65709/2017
Our Ref : CI/TPD17024643/Z

29th December 2017

General Investigation Team D

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SJU 8481M

1. We refer to your request on 15th December 2017 to conduct a physical inspection of a motor car bearing registration number SJU 8481M (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 09th December 2017.
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, we had carried out a physical inspection of the Motor Car on 28th December 2017 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. We now set out below our observations and comments with respect to this inspection.

General Condition

4. The mileage of the Motor Car at the time of our inspection was 114,985 km.
5. The Motor Car had sustained a relatively minor impact damages that was confined to its frontal & rear portion. Its lower bumper was observed to have been broken; its right hand fender was observed to be dented; its left & right hand bumper was observed to be dislodged from the securing bracket; its right hand headlamp was observed to be broken; its right hand side mirror was observed to be dislocated; its rear bumper was observed to be cracked & its number plate was missing at time of our inspection.



Photo 1 shows the mileage of the Motor Car was 114,985 km.



Photo 2 shows a general view of the front body of the Motor Car at the time of our inspection. The Motor Car was observed to have sustained minor damages at the frontal portion inclusive of missing number plate.



Photo 3 shows a general view of the rear body of the Motor Car at the time of our inspection. The Motor Car was observed to have cracked at the lower rear bumper around the exhaust area.



Photo 4 shows a general view of the front left body of the Motor Car at the time of our inspection. The Motor Car was observed to have sustained minor damages at the frontal portion inclusive of missing number plate.

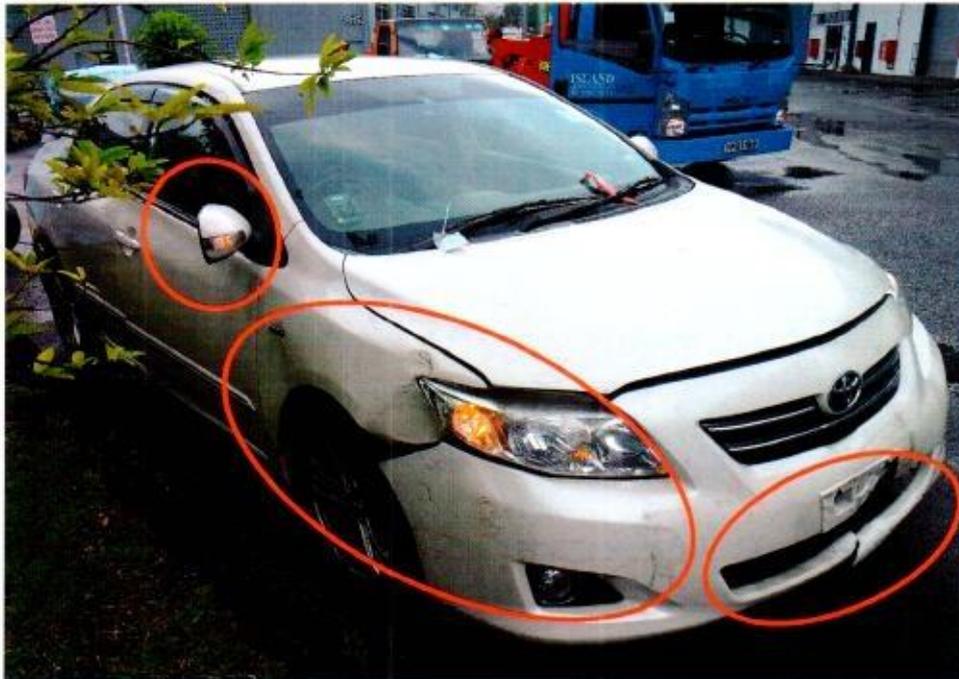


Photo 5 shows a general view of the front right body of the Motor Car at the time of our inspection. The Motor Car was observed to have sustained minor damages at the frontal & right portion inclusive of missing number plate.



Photo 6 shows a close up view of the front lower bumper of the Motor Car at the time of our inspection. The Motor Car had sustained relatively minor impact at the front sensor of the Motor Car inclusive a missing number plate.



Photo 7 shows a close up view of the right hand bumper & side fender of the Motor Car at the time of our inspection. The Motor Car had sustained relatively minor impact at time of our inspection.



Photo 8 shows a close up view of the right hand side mirror of the Motor Car at the time of my inspection. It was observed to be misaligned when retracted from the interior control button.



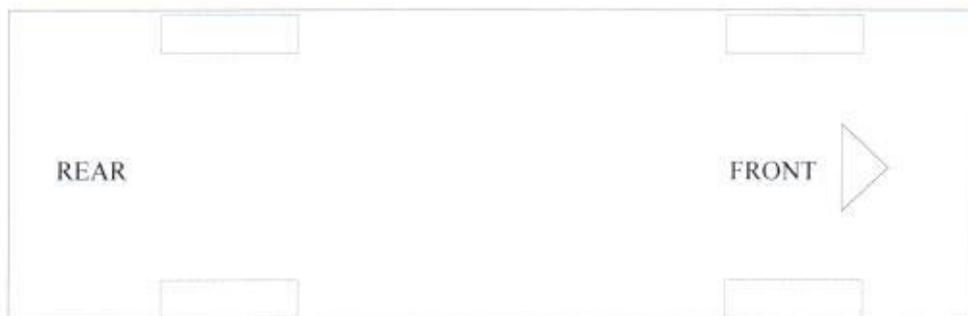
Photo 9 shows a close up view of the rear lower bumper of the Motor Car at the time of our inspection. It was observed to be cracked at time of our inspection.

Tyres and Wheel Rims

6. The condition of the Motor Car's 4 tyres was observed to be in serviceable condition. We 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:-

Neuton NT511 195/65R15 (7mm)

Neuton NT511 195/65R15 (7mm)



Neuton NT511 195/65R15 (7mm)

Neuton NT511 195/65R15 (6mm)

7. The 4 tyres were observed to be wrapped around alloy wheel rims that were found to be without any significant damage except for some marks of grazing nature on the outer spokes of the wheel rims, which are commonly associated to grazing against a road kerb. See photo 10 – 13 below.



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 7mm. The tyre, which was wrapped around alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 4 tyres.



Photo 11 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 6mm. The tyre, which was wrapped around alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation.



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 7mm. The tyre, which was wrapped around alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation.



Photo 13 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 7mm. 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 4 tyres.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Car, we had observed all the parts and components inside the engine compartment to be intact and unaffected by the accident. The brake fluid, engine fluid, transmission 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. Our subsequent checks on the underside of the Motor Car also revealed no fluid stain. Visually, the various undercarriage components of the Motor Car were all observed to be intact and without any visible damage. See photo 14 – 18 below.



Photo 14 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.

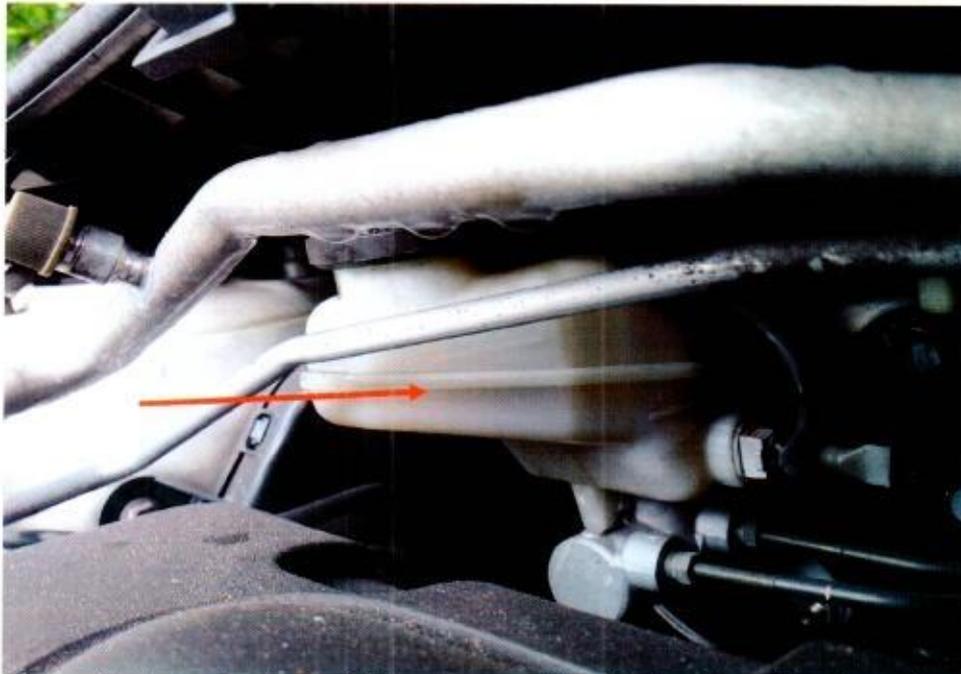


Photo 15 shows the brake fluid reservoir of the Motor Car at the time of our inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.

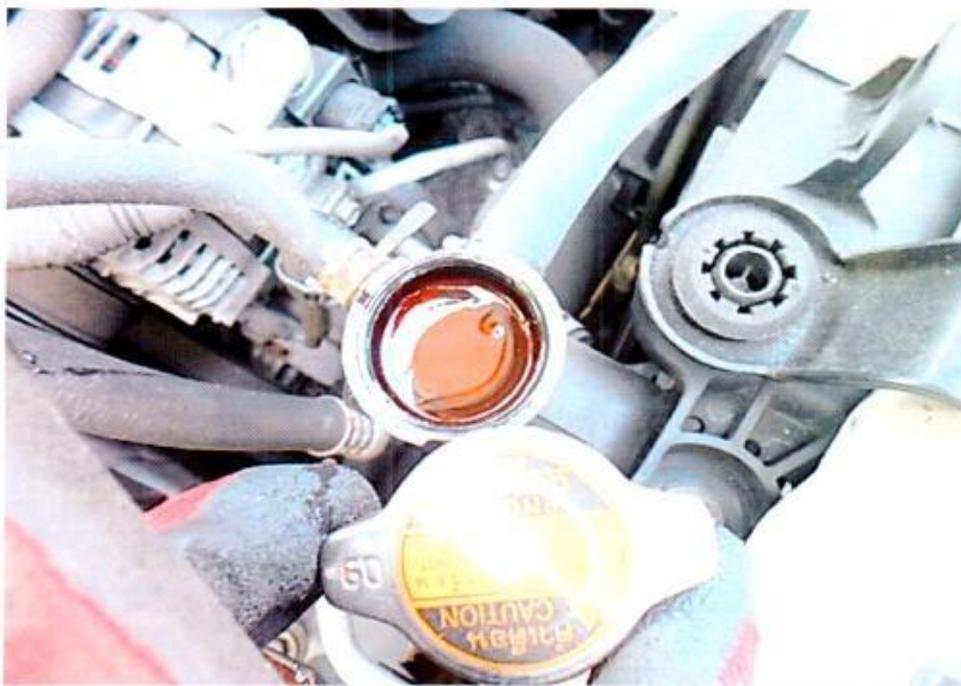


Photo 16 shows the coolant fluid radiator reservoir of the Motor Car at the time of our inspection. The coolant fluid was observed to be of sufficient level and without any visible contamination.

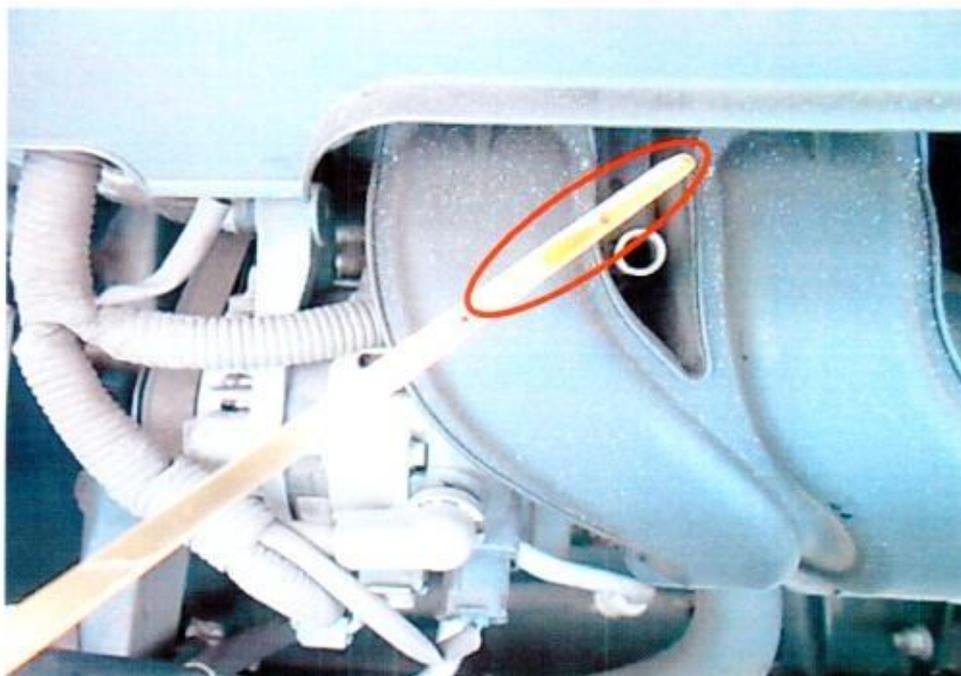


Photo 17 shows the engine oil dip stick of the Motor Car at the time of our inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

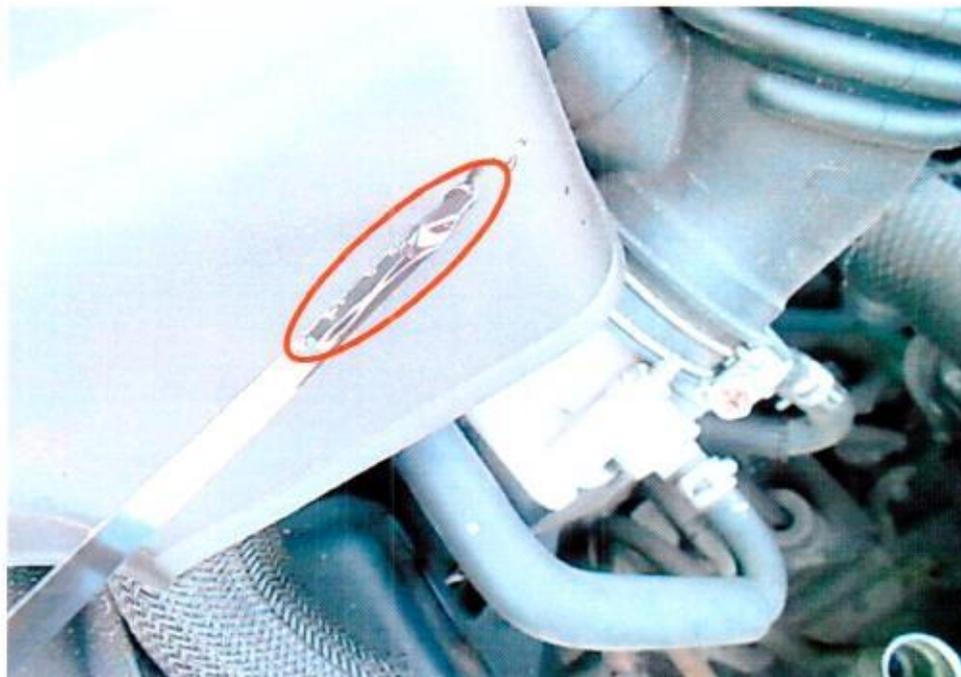


Photo 18 shows the power steering dip stick of the Motor Car at the time of our inspection. The power steering fluid was observed to be of sufficient level and without any visible contamination.

Steering System & Braking System

11. The mechanical components of the Motor Car's steering system and braking system were all found to be visually intact and undamaged. Our visual examination of the various steering components, which had included the rack and pinion, tie rods, tie rod ends and ball joints, revealed that these components were all generally in good condition. Components of the braking system like the brake master pump, brake booster, brake callipers and brake hoses amongst others were also found to be without any damage upon our visual inspection.
12. Static test on the steering system of the Motor Car also revealed no abnormality to the steering system. We 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 19 - 22 below.

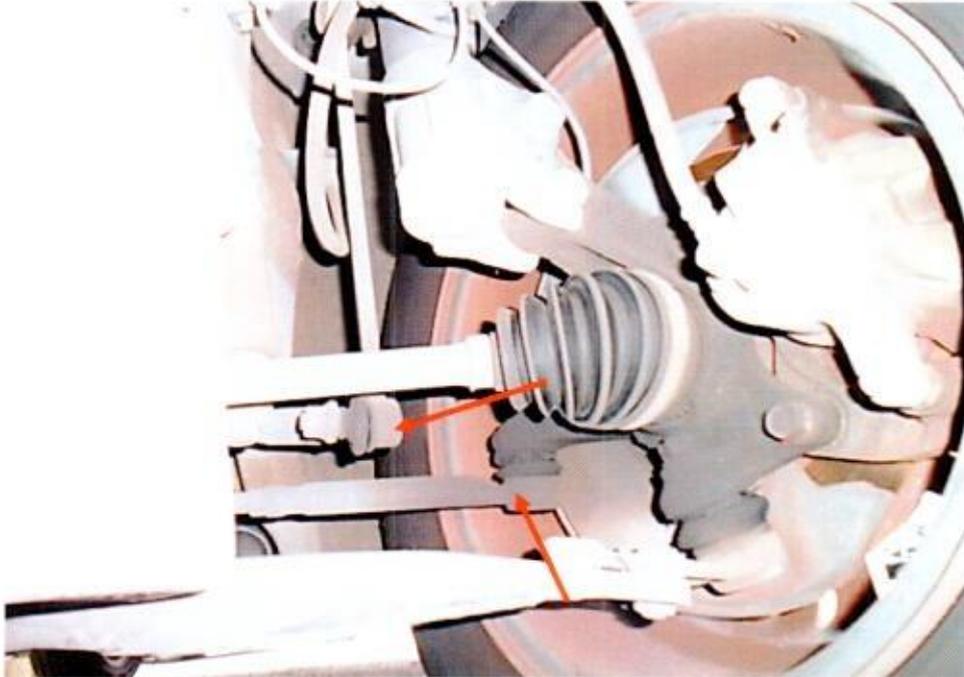


Photo 19 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition.



Photo 20 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod (arrowed). 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.

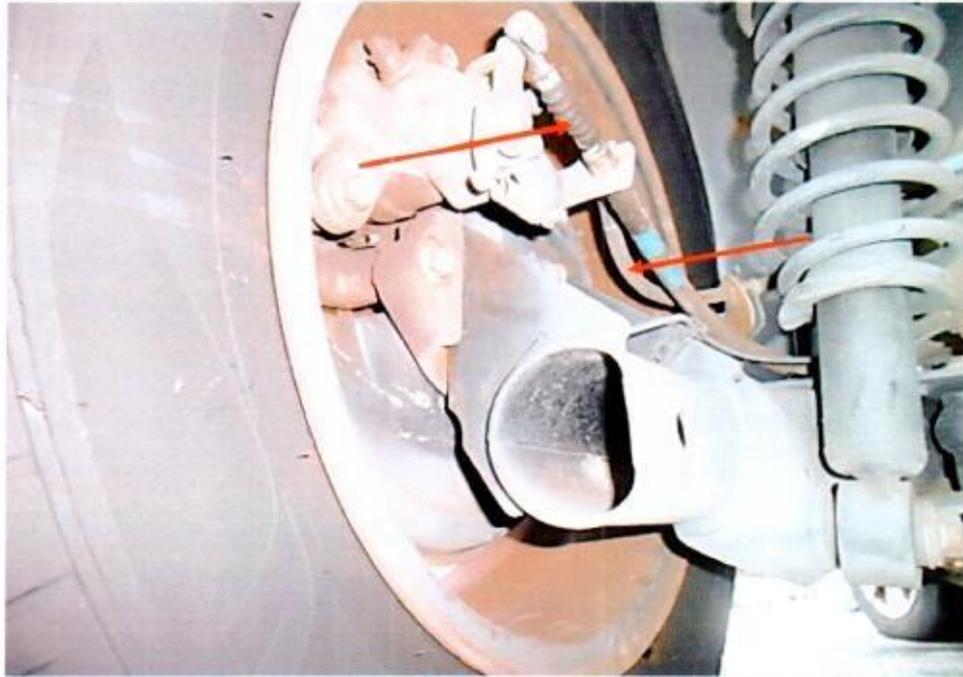


Photo 21 shows the brake hose (arrowed) at the rear left wheel of the Motor Car. We did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Our visual inspection of the various mechanical components of the Motor Car's braking system revealed all to be intact and without visible damage.



Photo 22 shows the various undercarriage components at the rear right wheel of the Motor Car. We did not observe any leakage of brake fluid at the time of our inspection of the Motor Car. Our visual inspection of the various mechanical components of the Motor Car's braking system revealed all to be intact and without visible damage.

Electronic Safety / Warning Indicators

13. The Motor Car's automatic self-test of the functionality of its various electronic operating systems like the Anti-Brake Lock System (ABS) and Supplemental Restraint System (SRS) during cranking of the engine had indicated that these systems 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 23 & 24 below.



Photo 23 shows the warning lights for the various electronic operating systems of the Motor Car appearing on its instrument panel during the self-test when the engine is cranked, in particular the ABS light and SRS light.

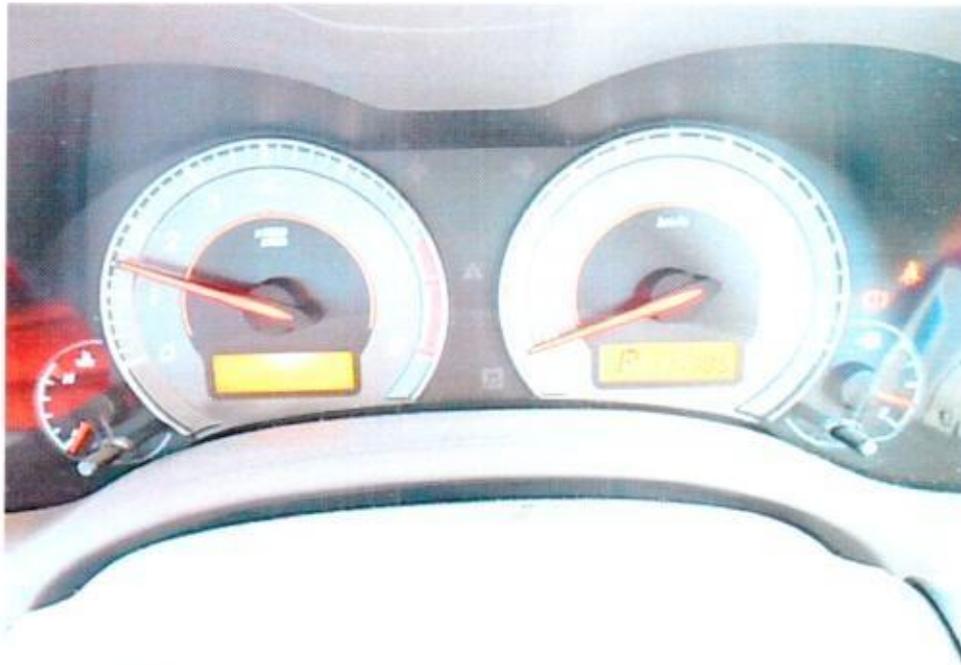


Photo 24 shows no warning lights illuminated on the instrument panel of the Motor Car after the engine was cranked. This would suggest that there was no abnormality to the various electronic operating systems of the Motor Car, like the ABS and SRS.

Operational Behaviour of the Motor Car

14. A short operational test of the Motor Car, to primarily determine whether there was any abnormality to its engine system, its transmission system and braking system was subsequently carried out.
15. 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 were 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.



Photo 25 shows the operational test, the transmission system of the Motor Car was able to be shifted to the reverse mode without any difficulty. There were no abnormal sounds heard and/or abnormal behaviour of the Motor Car's engine system. It was able to move forward and backward normally.



Photo 26 shows the operational test, the transmission system of the Motor Car was able to be shifted to the drive mode without any difficulty. There were no abnormal sounds heard and/or abnormal behaviour of the Motor Car's engine system. It was able to move forward and backward normally.

Conclusion

16. From our physical inspection of the Motor Car, it appears that its engine system, transmission system, steering system and braking system were all in serviceable condition. We did not find any evidence(s) to suggest that there was possible mechanical failure to the Motor Car that may have caused and/or contributed to the accident.
17. A short operational test of the Motor Car, which we 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.
18. The 4 tyres of the Motor Car were also found to be in serviceable condition. There was no 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 sufficiently inflated for vehicular operation with remaining tread depth of approximately 6mm & 7mm each.



Rohaizal A. Rahim
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.