



Your Ref: TP/IP/60459/2017
Our Ref : CI/TPD17022391/D

24 November 2017

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SJM 3263B

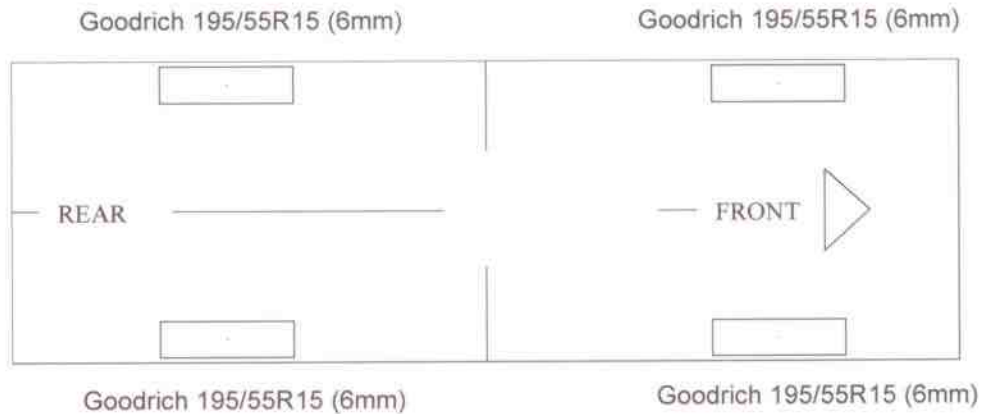
1. I refer to your request on 15 November 2017 to conduct a physical inspection of a motor car bearing registration number SJM 3263B (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 08 November 2017.
2. The objective of the inspection is to determine if there was any possible mechanical failure to the Motor Car that may have contributed to the accident.
3. Following the request, I had carried out a physical inspection of the Motor Car on 23 November 2017 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 163,227km.
5. The Motor Car was observed to have sustained damage at its front right body, front left body, left front body and left rear body. Its front bumper, front bonnet, front grille, front left and right fenders, front left and right headlamps were amongst the body parts at the frontal portion of the Motor Car that were damaged, while its left rear fender, rear left taillamp and rear bumper were amongst the body parts at the left rear portion that were damaged.

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:-



7. The 4 tyres were observed to be wrapped around alloy wheel rims that were found to be without any damage except for the front left wheel rim. Fresh marks of grazing nature were observed on the outer spokes of the front left wheel rim, indicating that the damage was a result of the accident. See photo 1 – 8 below.



Photo 1 shows a general view of the front right body of the Motor Car at the time of my inspection. The Motor Car was observed to have sustained damage at its front right body. Its front number plate, front bumper (circled), front right headlamp and front right fender were amongst the body parts that were damaged as a result of the accident. The mileage of the Motor Car at the time of my inspection was recorded to be 163,227km.



Photo 2 shows a general view of the front left body of the Motor Car at the time of my inspection. The front left body and left front body of the Motor Car were also damaged as a result of the accident. Body parts like the front bonnet, front left fender and front left headlamp were damaged.



Photo 3 shows a general view of the Motor Car's rear left body at the time of my inspection. The rear bumper, left rear fender and rear left tail lamp of the Motor Car had sustained damage arising from the accident.



Photo 4 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 6mm. The tyre was wrapped around alloy wheel rim that was found to be with grazed marks on the outer spokes. The tyre was also observed to be 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.



Photo 5 shows the front left wheel rim of the Motor Car. Fresh marks of grazing nature were observed on the outer spokes of the front left wheel rim.



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



Photo 7 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 6mm. The tyre, which was wrapped around alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation. There was also no damage found on the 4 wheel rims of the Motor Car except for the front left wheel rim, which was damaged as a result of the accident.



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 6mm. 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.

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, transmission 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 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 fluid stain. Visually, the various undercarriage components of the Motor Car were all observed to be intact and without any visible damage. See photo 9 – 13 below.



Photo 9 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 10 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 and without any visible contamination.



Photo 11 shows the transmission fluid reservoir of the Motor Car at the time of my inspection. The transmission fluid was observed to be of sufficient level and without any visible contamination.



Photo 12 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 and without any visible contamination.



Photo 13 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.

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 14 - 18 below.

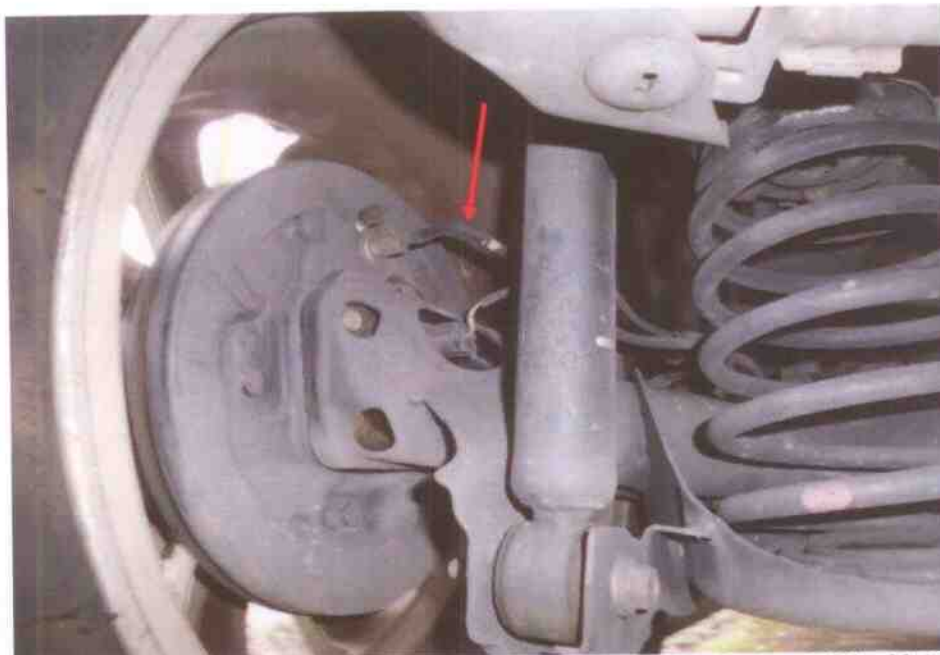


Photo 14 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.



Photo 15 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.



Photo 16 shows the front left 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.

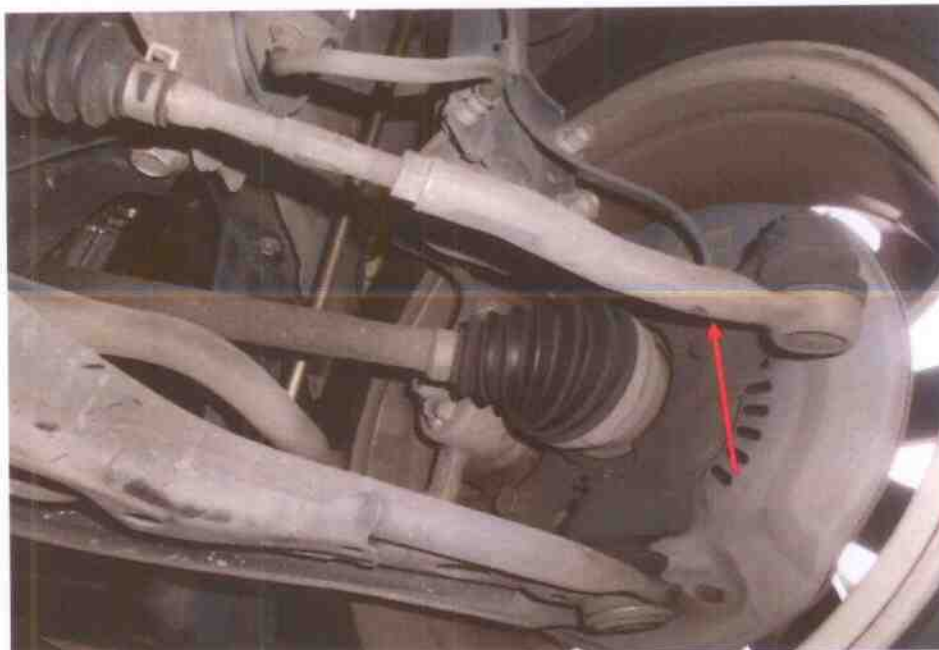


Photo 17 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition at the 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.

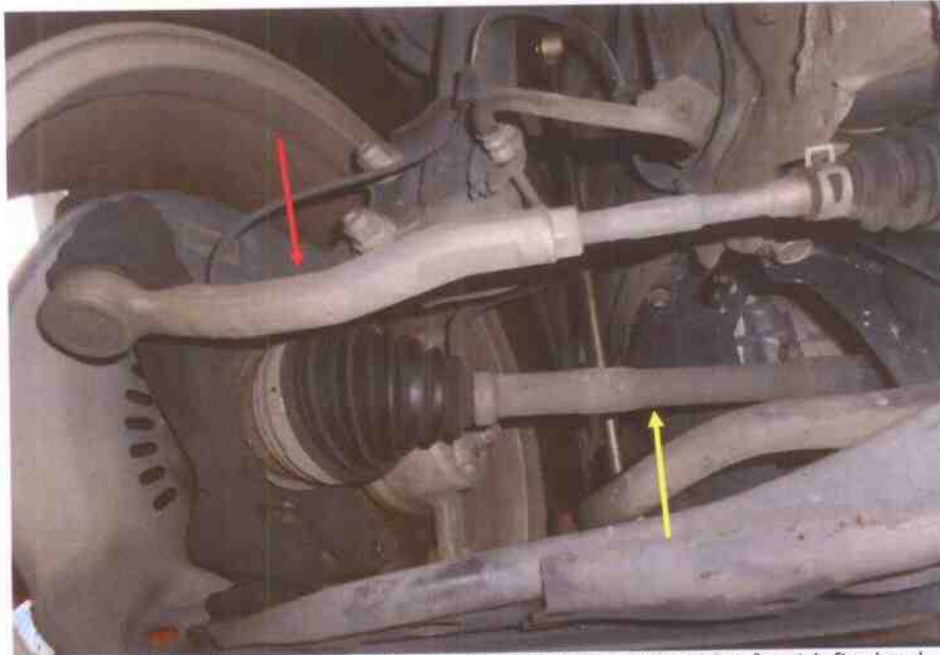


Photo 18 shows the various undercarriage components at the front left wheel of the Motor Car, which had included the steering tie rod (red arrow) and left drive shaft (yellow arrow). The various undercarriage components of the Motor Car were all found to be intact without any visible damage.

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), Electric Power Steering System (PS) 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 19 & 20 below.



Photo 19 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, PS light and SRS light (arrowed).



Photo 20 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, PS and SRS etc.

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 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.

Conclusion

16. 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.
17. 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.
18. 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 6mm each.



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.