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Your Ref: TP/IP/66307/2017
Our Ref : CI/TPD18001554/Z

03rd January 2018

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SLJ 8352L

1. We refer to your request on 19th December 2017 to conduct a physical inspection of a motor car bearing registration number SLJ 8352L (herein referred to as "**Motor Car**"), which was involved in a fatal road traffic accident on 13th 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 29th December 2017 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. We 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 our inspection was 88,173km.

5. The Motor Car had sustained relatively extensive impact damages which were noted to its frontal left & frontal right portion. The impact force was relatively significant, causing the various parts and components at the frontal left & frontal right of the engine compartment to be damaged. This has included its front left & right bumper was observed to have been damaged, its left & right headlamp was observed to be cracked & its front left & right tyre was observed to have been deflated due to the accident.

Photo 1 shows the mileage of the Motor Car was recorded to be 88,173km.

Photo 1 shows a general view of the frontal body of the Motor Car at the time of our inspection. The Motor Car had sustained relatively extensive impact damages which were confined to its frontal left & frontal right portion. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 2 shows a general view of the front left body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 3 shows a close-up view of the front left body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front left area of the engine compartment to be damaged.

Photo 3 shows a close-up view of the front left body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 3 shows a close-up view of the front left body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 3 shows a close-up view of the front right body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 3 shows a close-up view of the front left body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 3 shows a close-up view of the front left body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 3 shows a close-up view of the front left body of the Motor Car at the time of our inspection. The impact force was relatively significant, causing the various parts and components at the front area of the engine compartment to be damaged.

Photo 4 shows a general view of the Motor Car's rear right body at the time of our inspection. There was no damage found to the rear portion of the Motor Car.

Photo 5 shows a general view of the Motor Car's rear left body at the time of our inspection. There was no damage found to the rear portion of the Motor Car.

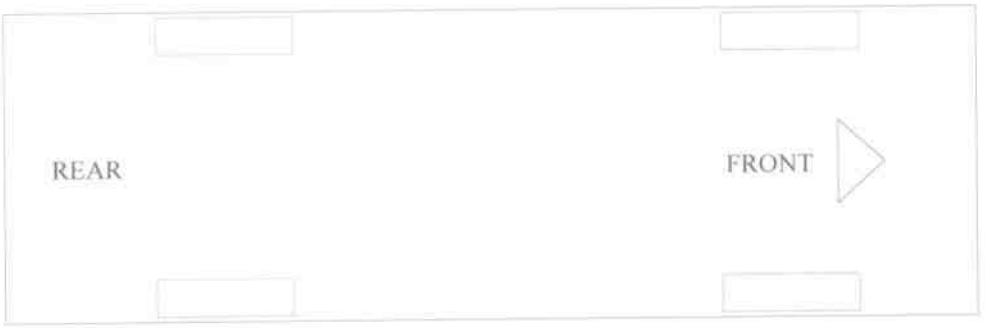
Photo 3 shows a general view of the rear body of the Motor Car. It was observed to be in good condition, no damage was sighted at the time of our inspection.

Tyres and Wheel Rims

6. The front left & right tyres were observed to be deflated likely due to the accidents impact. The conditions of the Motor Car's 4 tyres were observed to be in serviceable condition despite the front left & right tyres were deflated. The remaining tread depth of the front left tyre was approximately 3mm & the front right tyre was approximately 5mm. 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 2 rear 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:-

Classe Premiere CP672
195/60R14 (5mm)

Acenda ACE-100
195/60R14 (3mm) (Deflated)



Classe Premiere CP672
195/60R14 (6mm)

Acenda ACE-100
195/60R14 (5mm) (Deflated)

7. The 4 tyres were observed to be wrapped around alloy wheel rims that were found to be without any significant damage apart from some relatively minor kerb grazing type of damage. See photo 6 – 10 below.

Photo 6 shows the condition of the front left tyre, it was observed to be deflated likely due to the accident's collision impact.

Photo 6 shows the condition of the front right tyre, it was observed to be deflated likely due to the accident's collision impact.

Photo 7 shows the condition of the front left tyre, it was observed to be deflated. The remaining tread depth of the front left tyre was approximately 3mm.

Photo 8 shows the condition of the front left tyre, it was observed to be deflated. The remaining tread depth of the front left tyre was approximately 5mm.

Photo 9 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 5mm. The tyre, which was wrapped around alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation.

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 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 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 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. 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 11 – 14 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 our inspection. The brake fluid was observed to be of sufficient level and without any visible contamination (arrowed).

Photo 13 shows checks being carried out to the engine coolant of the Motor Car at the time of our inspection. The engine coolant was observed to be of sufficient level and without any visible contamination upon removal of the radiator cap (arrowed).

Photo 14 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.

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.

12. The braking system of the Motor Car was likely to be in serviceable condition at the material time of the accident. 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.

13. 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.

14. Our 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 15 – 19 below.

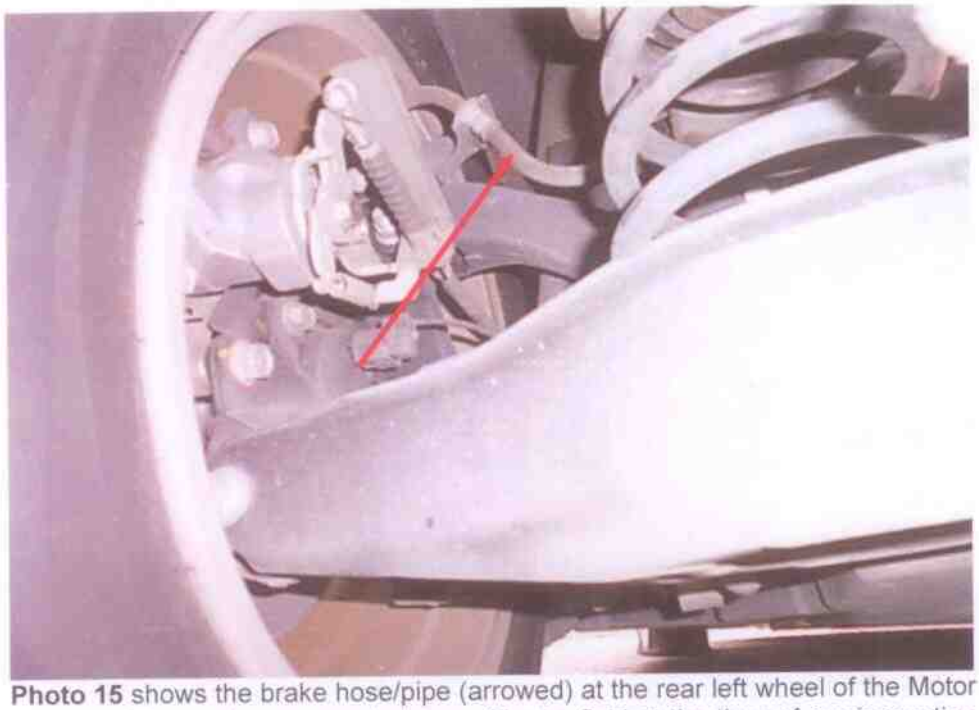


Photo 15 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. We did not observe any leakage of brake fluid at the time of our inspection of the Motor Car.

Photo 16 shows the brake hose/pipe (arrowed) 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.

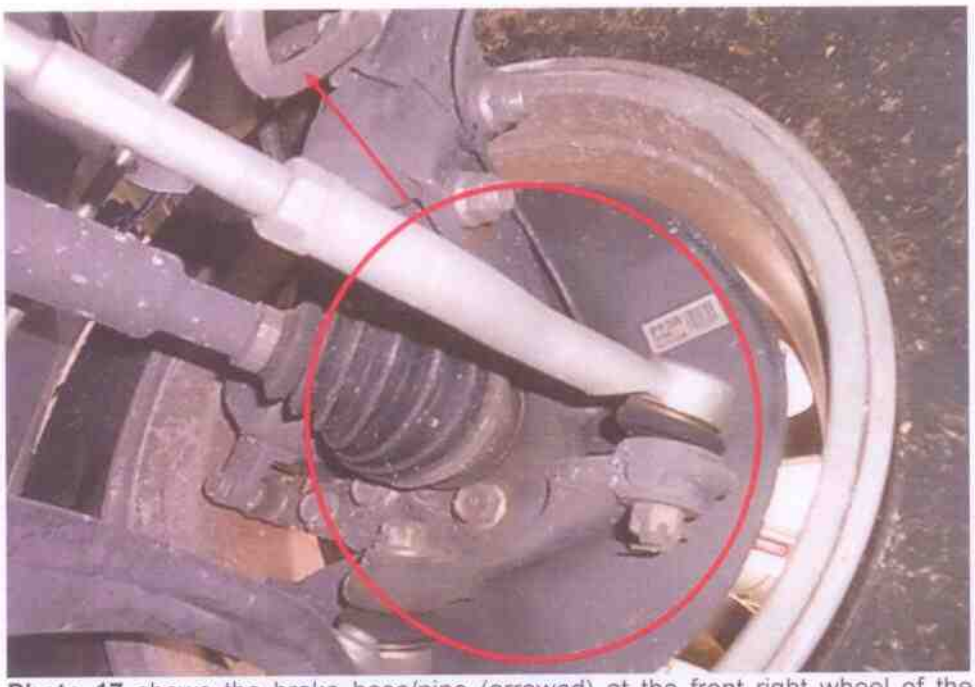


Photo 17 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. We did not observe any leakage of brake fluid at the time of our inspection of the Motor Car. Visual examination of the various components of the braking system like the brake calliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage.

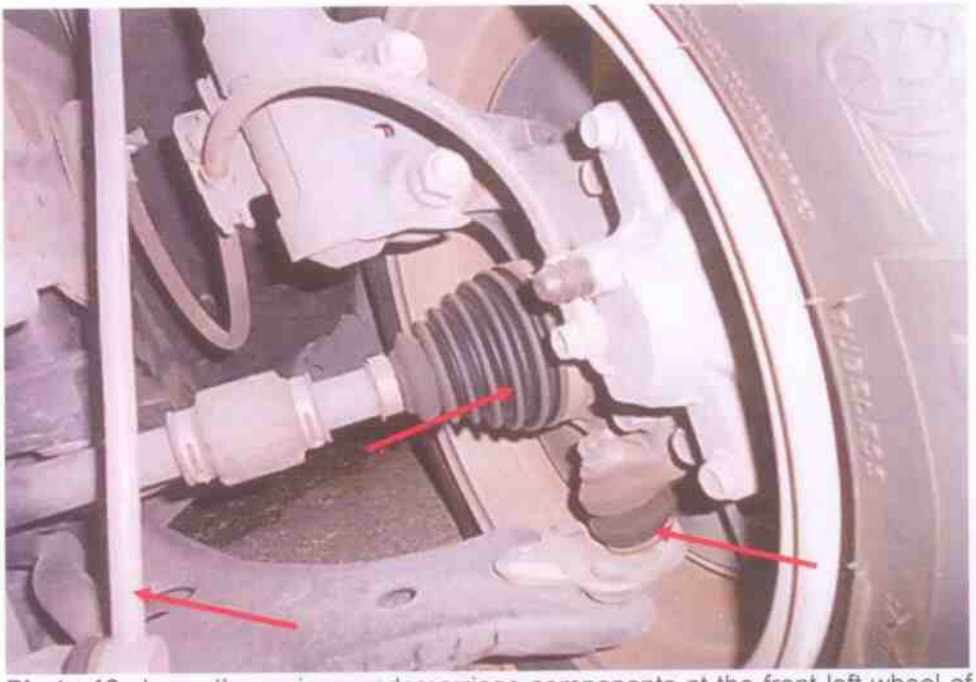


Photo 18 shows the various undercarriage components at the front left wheel of the Motor Car, in particular the steering tie rod & drive shaft (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition.

Photo 19 shows the front right wheel of the Motor Car turned to its full right. During our steering system test, we did not experience any abnormal free play and/or resistance when we 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.

Electronic Safety / Warning Indicators

15. The Motor Car's automatic self-test of the functionality of its various electronic operating systems such as the Anti-Lock Braking System (ABS), Supplemental Restraint System (SRS), Temperature Warning, Traction Control, Power Steering Wheel Warning Light amongst others during cranking of the engine had lighted up indicating that these systems were installed in the Motor Car electronic operating system. It goes through the various sensors for each function on initialising the devices. This can be established from the warning lights appearing on the instrument panel.

16. Having said that, for this particular case some of the warning lights did not goes off after the Motor Car's automatic self-test process. This indicates that some of the sensors failed to initialise during start-up of the engine likely due to accidents impact. However, operational test conducted on the Motor Car reveals that this does not contributes to the accident. (Refer to clause 18 for operational test details) See photo 20 & 21 below.

Photo 20 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 21 shows some warning lights illuminated on the instrument panel of the Motor Car after the engine was cranked. This indicates that some of the sensors failed to initialise during start-up of the engine likely due to accidents impact. However, operational test conducted on the Motor Car reveals that this does not contributes to the accident.

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 engine system, its transmission system and braking system was subsequently carried out.

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 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 22 shows 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.

Conclusion

19. 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.

20. Although, we had found some warning indicators appeared on the instrument panel that indicates malfunction of some components. We had however conducted a short operational test of the Motor Car & it 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. We did not find any evidence(s) to suggest that there was any possible mechanical failure to the Motor Car that may have caused and/or contributed to the accident.

21. The front left & right tyres were observed to be deflated likely due to the accidents impact. The conditions of the Motor Car's 4 tyres were observed to be in serviceable condition despite the front left & right tyres were deflated. The remaining tread depth of the front left tyre was approximately 3mm & the front right tyre was approximately 5mm. 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 2 rear tyres were also observed to be sufficiently inflated for vehicular operation.

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