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Our Ref : CI/TPD19009634/P

11th June 2019

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTOR JEEP GZ 8901C

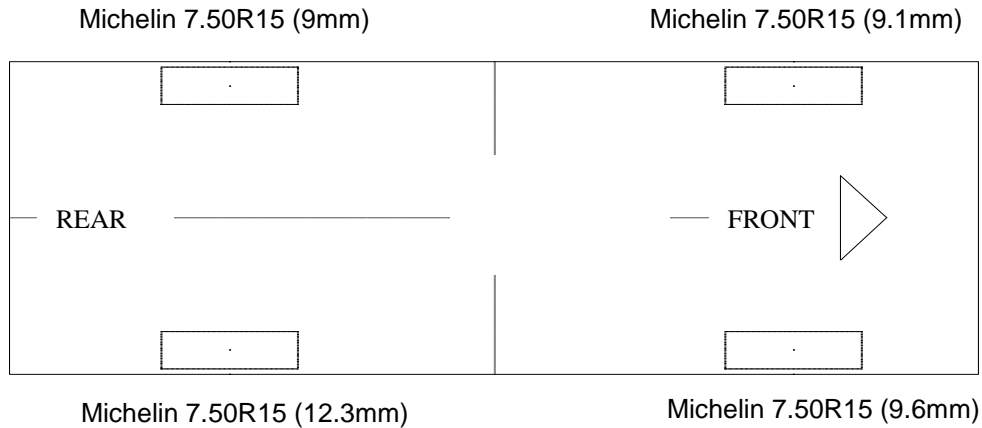
1. I refer to your request on 28th May 2019 to conduct a physical inspection of a Motor Jeep bearing registration number GZ 8901C (herein referred to as "**Motor Jeep**"), which was involved in a road traffic accident on 09 May 2019.
2. The objective of the inspection is to determine if there was any possible mechanical failure to the Motor Jeep that may have contributed to the accident.
3. Following the request, I had carried out a physical inspection of the Motor Jeep on 14th May 2019 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 Jeep at the time of my inspection was 7,786km.
5. The Motor Jeep was observed to have sustained relatively minor damage at its rear portion. Its rear right body panel, rear right brake lamp, rear right fender and rear right mud flaps were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

6. The condition of the Motor Jeep'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 standard steel wheel rims that were found to be without any damage. See photo 1 – 11 below.



Photo 1 shows a general view of the rear right body of the Motor Jeep at the time of my inspection. The Motor jeep was observed to have sustained relatively minor damage at its rear portion. Its rear right body panel, rear right brake lamp, rear right fender and rear right mud flaps were amongst the body parts that were damaged as a result of the accident. The mileage of the Motor Jeep at the time of my inspection was recorded to be 7,786km.



Photo 2 shows a close up view of the damaged rear portion. Its rear right body panel (circled), rear right brake lamp and rear right fender (arrowed) were amongst the body parts that were damaged as a result of the accident.



Photo 3 shows a close up view of the damaged rear portion rear right mud flaps were amongst the body parts that were damaged as a result of the accident. (arrowed) were amongst the body parts that were damaged as a result of the accident.



Photo 4 shows a general view of the Motor Jeep's front portion at the time of my inspection. The front portion of the Motor Jeep was observed to have been unaffected by the accident.



Photo 5 shows a general view of the Motor Jeep's right portion at the time of my inspection. The right portion of the Motor Jeep was observed to have been unaffected by the accident.



Photo 6 shows a general view of the Motor Jeep's left portion at the time of my inspection. The right portion of the Motor Jeep was observed to have been unaffected by the accident.



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



Photo 8 shows the condition of the front right tyre of the Motor Jeep, which was observed to be in serviceable condition with remaining tread depth of approximately 9.6mm. 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 Jeep were wrapped around standard steel wheel rims without any damage.



Photo 9 shows the condition of the rear right tyre of the Motor Jeep, which was observed to be in serviceable condition with remaining tread depth of approximately 12.3mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).



Photo 10 shows the condition of the rear left tyre of the Motor Jeep, which was observed to be in serviceable condition with remaining tread depth of approximately 9mm. 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 Jeep were wrapped around standard steel wheel rims without any damage.



Photo 11 shows the condition of the rear right tyre of the Motor Jeep, which was observed to be in serviceable condition with remaining tread depth of approximately 9.1mm. 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 Jeep's 4 tyres.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Jeep, 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 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 Jeep.
10. My subsequent checks on the underside of the Motor Jeep also revealed no sign(s) or indication(s) of fluid leak and/or fluid stain(s). Visually, the various undercarriage components of the Motor Jeep were all observed to be intact and without any visible damage. See photo 12 – 18 below.



Photo 12 shows a general view of the Motor Jeep'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 13 shows the brake fluid reservoir of the Motor Jeep at the time of my inspection. The brake fluid was observed to be of sufficient level and without any visible contamination.

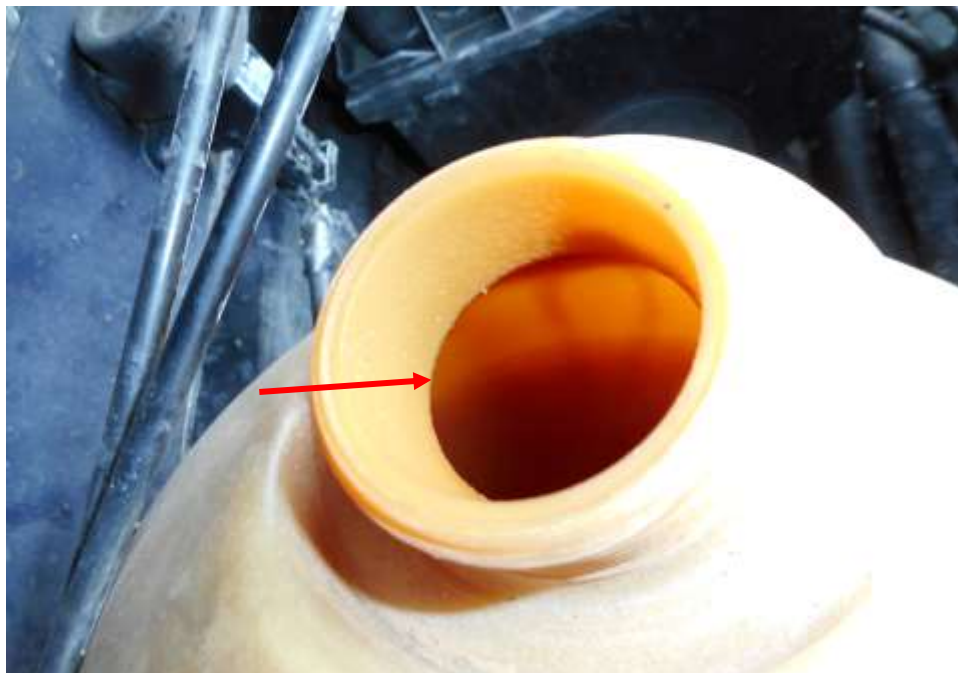


Photo 14 shows checks being carried out to the engine coolant of the Motor Jeep at the time of my inspection. The engine coolant was observed to be of sufficient level (arrowed) and without any visible contamination.



Photo 15 shows checks being carried out to the power steering reservoir of the Motor Jeep at the time of my inspection. The steering fluid was observed to be of sufficient level (arrowed) and without any visible contamination.



Photo 16 shows the engine oil dip stick of the Motor Jeep at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.



Photo 17 shows the undercarriage of the Motor Jeep, at the area where the engine housing, transmission housing and front axle differential 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 Jeep.



Photo 18 shows the undercarriage of the Motor Jeep, at the area where the rear axle differential 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 Jeep.

Braking System & Steering System

11. Static brake tests conducted on the Motor Jeep 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 Jeep. The braking system of the Motor Jeep 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 Jeep 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 19 - 23 below.



Photo 19 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Jeep. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Jeep. Static tests of the Motor Jeep's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Jeep were also all found to be intact and without any visible damage.



Photo 20 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Jeep. 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 left wheel of the Motor Jeep turned to its full right. 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 Jeep 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 Jeep, 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 Jeep 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 Jeep.

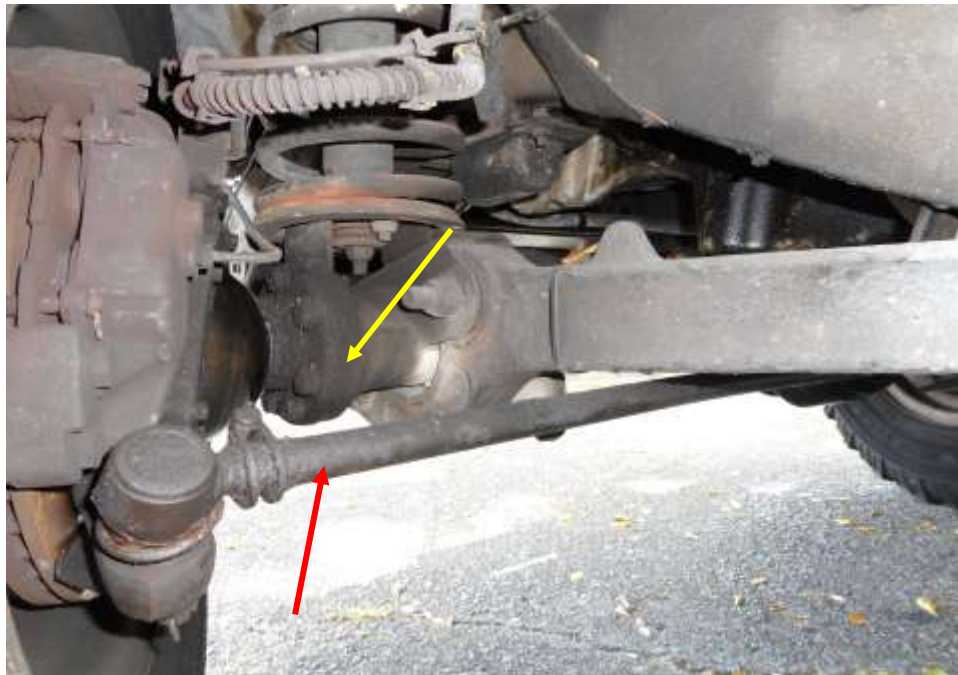


Photo 23 shows the various undercarriage components at the front left wheel of the Motor Jeep , which had included the steering tie rod (red arrow) and front left drive shaft (yellow arrow). The various undercarriage components of the Motor Jeep were all found to be intact without any visible damage.

Electronic Safety / Warning Indicators

13. The Motor Jeep was not fitted with any electronic safety feature(s) like Anti-Brake Lock System (ABS), Supplemental Restraint System (SRS) etc. There was hence no test carried out on the functionality of these systems

Operational Behaviour of the Motor Jeep

14. A short operational test of the Motor Jeep , 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 Jeep 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 Jeep'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 Jeep 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 Jeep, 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 Jeep that may have caused and/or contributed to the accident.
17. A short operational test of the Motor Jeep, 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 Jeep 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 9mm to 12.3mm.

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