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Your Ref: TP/IP/28682/2022
Our Ref : CI/TPD22013007/P

18th January 2023

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SME 1055E

1. I refer to your request on 13th December 2022 to conduct a physical inspection of a Motor Car bearing registration number SME 1055E (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 22nd October 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 18th January 2023 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942 and Indeco Engineers Pte Ltd, 39 Defu Lane 12, Singapore 539139. I now set out below my observations and comments with respect to this inspection.

General Condition

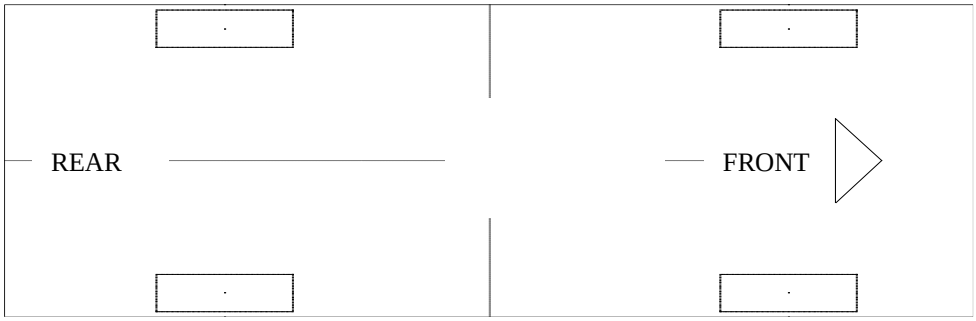
4. The mileage of the Motor Car at the time of my inspection was 118,488km.

5. The Motor Car was observed to have sustained damage at its front portion. Its front bonnet, front left headlamp and front bumper were amongst the body parts were damaged as a result of the accident.

Tyres and Wheel Rims

6. The front right tyre and wheel rim was damaged with a burst mark on the outer side wall of the tyre and a dent on the wheel rim due to the impact sustain as a result of the accident. However, during our inspection the front right tyre was replace with a serviceable tyre by the workshop to facilitate towing and vehicle testing. The condition of the other Motor Car's front left, both rear left and right 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 Motor Car's front left, both rear left and right tyres. The Motor Car's front left, both rear left and right 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:-

Bridgestone 175/65R15 (4.5mm) | Michelin 175/65R15 (4.6mm)



Bridgestone 175/65R15 (5.2mm) | Michelin 175/65R15 (4.9mm) (Burst and deflated)

7. The front right tyre and wheel rim was damaged with a burst mark on the outer side wall of the tyre and a dent on the wheel rim due to the impact sustain as a result of the accident. The Motor Car's front left, both rear left and right tyres were observed to be wrapped around steel wheel rims that were found to be without any damage. See photo 1 – 12 below.

Photo 1 shows the general view of the Motor Car's rear body at the time of my inspection. The Motor Car rear was observed to be unaffected by the accident.

Photo 2 shows a general 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, front left headlamp and front bumper were amongst the body parts were damaged as a result of the accident.

Photo 3 shows the 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 (red circle) and front left headlamp (yellow circle) were amongst the body parts that were damaged as a result of the accident.

Photo 4 shows the 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) were amongst the body parts that were damaged as a result of the accident.

Photo 5 shows a general view of the Motor Car's right body at the time of my inspection. The Motor Car left was observed to be unaffected by the accident.

Photo 6 shows a general view of the Motor Car's left body at the time of my inspection. The Motor Car left was observed to be unaffected by the accident.

Photo 7 shows the damaged front right tyre and wheel rim (red arrow) and the replaced serviceable front right tyre and wheel rim (yellow arrow) of the Motor Car.

Photo 8 shows the general view of the front right tyre and wheel rim which was damaged with a burst mark on the outer side wall of the tyre and a dent on the wheel rim due to the impact sustain as a result of the accident. Its remaining tread depth was of approximately 4.9mm.

Photo 9 shows the close up view of the front right tyre and wheel rim which was damaged with a burst mark (red circle) on the outer side wall of the tyre and a dent (yellow circle) on the wheel rim due to the impact sustain as a result of the accident. Its remaining tread depth was of approximately 4.9mm.

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 5.2mm. The tyre, which was wrapped around standard steel wheel rim, was also observed to be sufficiently inflated for vehicular operation.

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 4.5mm. The tyre, which was wrapped around standard steel wheel rim, was also observed to be sufficiently inflated for vehicular operation.

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 4.6mm. The tyre, which was wrapped around standard steel wheel rim, was also observed to be sufficiently inflated for vehicular operation.

Electric motor Compartment & Operating Fluids

8. Upon examination of the Motor Car's electric motor compartment, I had observed all the parts and components inside the electric motor compartment to be intact and unaffected by the accident. I have observed that the, the brake fluid and electric motor 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 electric motor compartment revealed no sign(s) or indication(s) of fluid leakage and/or fluid stain within the electric motor compartment of the Motor Car.

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 13 – 16 below.

Photo 13 shows a general view of the Motor Car's electric motor compartment, which was accessed by lifting the front bonnet of the Motor Car. The various parts and components inside the electric motor compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the electric motor compartment

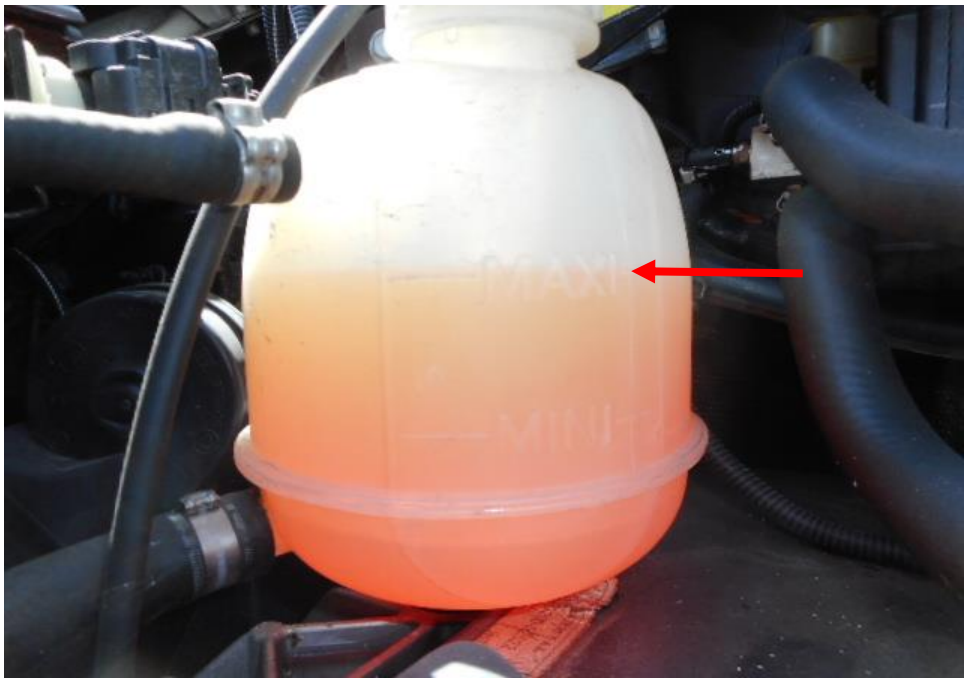


Photo 14 shows the electric motor coolant reservoir of the Motor Car at the time of my inspection. The electric motor coolant was observed to be of sufficient level (arrowed) and without any visible contamination.

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 electric motor 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 was able to be conducted as the brake booster was able to be powered up on the Motor Car and 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 rack and pinion, tie rods, tie rod ends and ball joints had revealed that these components were all generally in good condition. See photo 17 - 22 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. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.

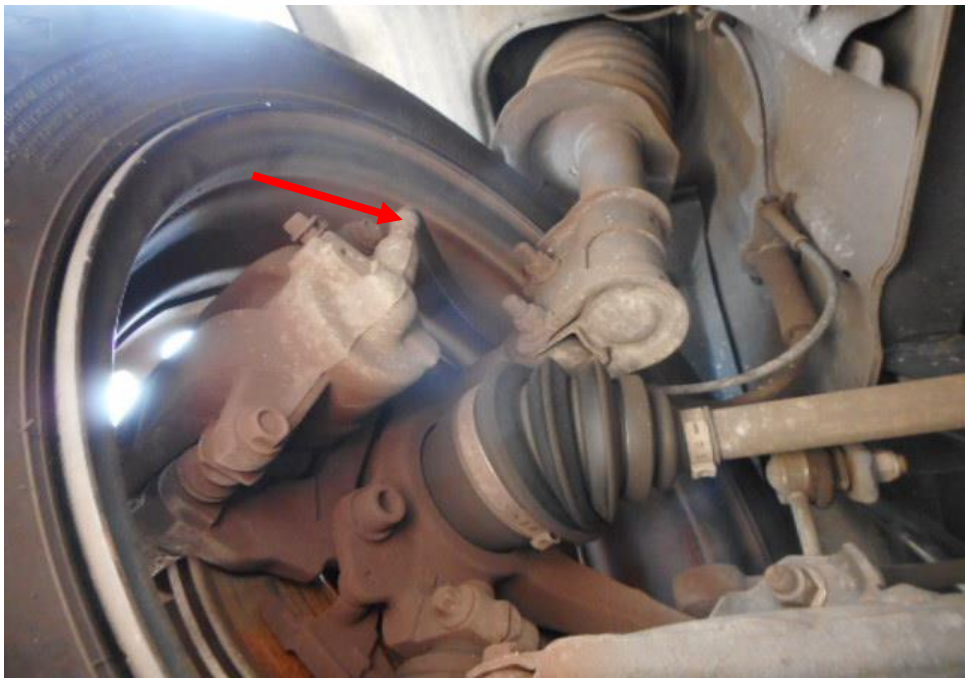


Photo 19 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.

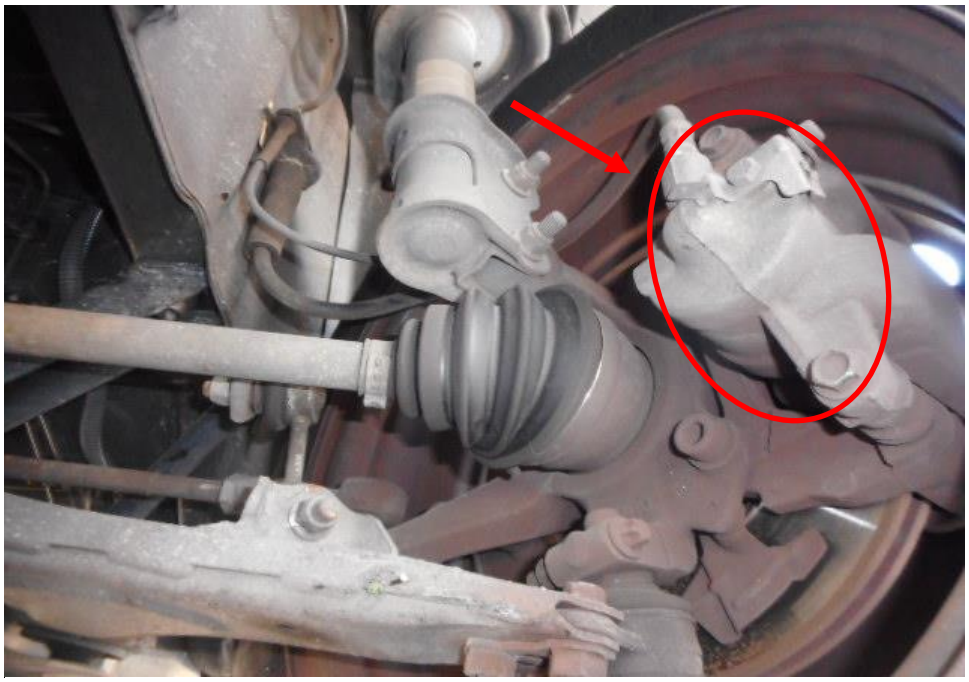


Photo 20 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without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

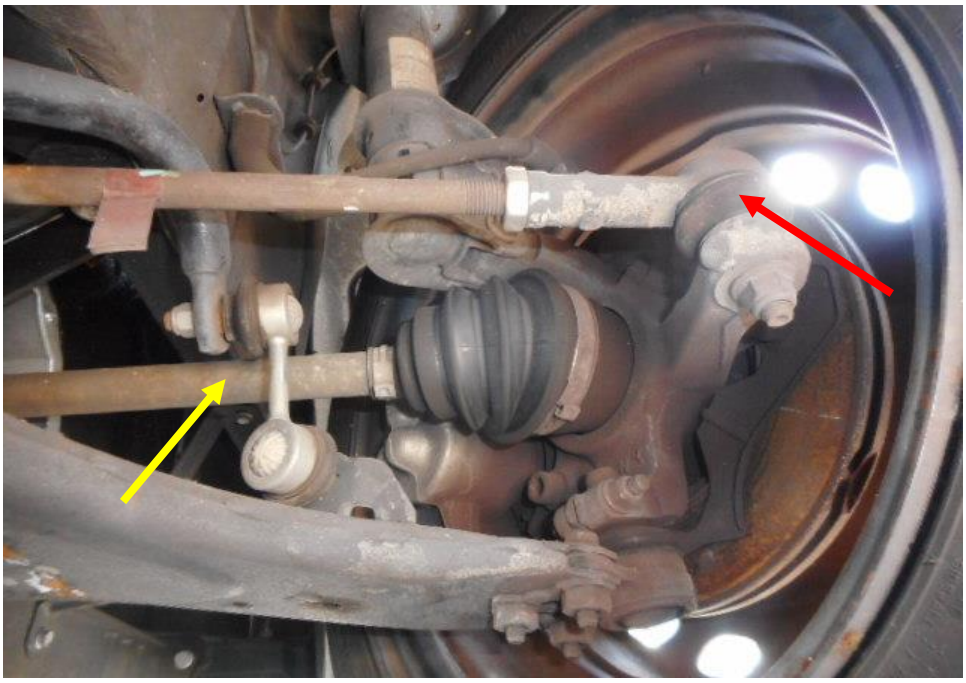


Photo 21 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod (red arrow) and its driveshaft (yellow arrow). The various steering components were all found to be intact. There was also no sign of fluid stain observed on the various undercarriage components at the front right wheel of the Motor Car.

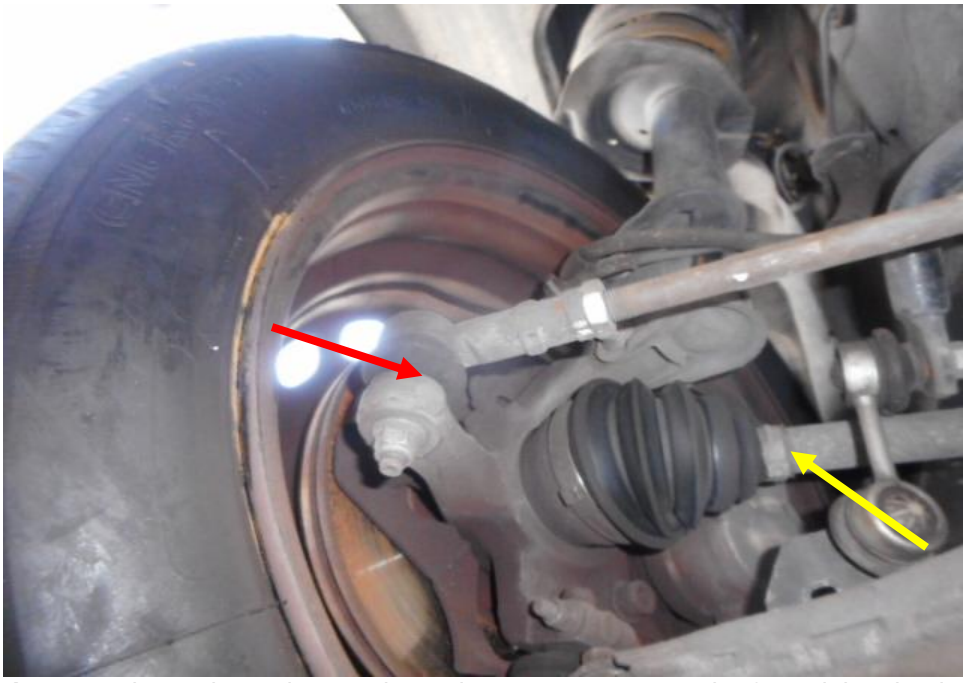


Photo 22 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod (red arrow) and its driveshaft (yellow arrow). The various steering components were all found to be intact. There was also no sign of fluid stain observed on the various undercarriage components at the front right wheel of the Motor Car.

Photo 23 shows the 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 full left and full 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

13. The Motor Car's automatic self-test of the functionality of its electronic operating systems like the Anti-Lock Brake System (ABS), Electronic Power Steering (EPS), Traction Control System (TCS) and Supplemental Restraint System (SRS) during cranking of the electric motor 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 tyre puncture warming light remained illuminated up after the electric motor was cranked. This was due to the saved data log of the deflated tyre as a result of the accident front right tyre. See photo 24 - 26 below.

Photo 24 shows the warning light for Anti-Lock Brake System (ABS), Electronic Power Steering System (EPS), Traction Control System (TCS) 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 electric motor was cranked.

Photo 25 shows no warning lights illuminated on the instrument panel of the Motor Car after the electric motor was cranked. This would suggest that there was no abnormality to the electronic operating system of the Motor Car, like the ABS, EPS, TCS, SRS and etc.

Photo 26 shows tyre puncture warning light (arrowed) remained illuminated on the instrument panel of the Motor Car after the electric motor was cranked. This was due to the saved data log of the deflated tyre as a result of the accident front right tyre.

Seat Belts

15. The front right, front left, rear right and rear left seat belts of the "Motor Car" were tested and all the seat belts were able to be fastened securely into the respective pre-tensioners that were fitted at the sides of each seat.

Operational Behaviour of the Motor Car

16. A short operational test to the Motor Car, to primarily determine whether there was any abnormality to its various operating systems like its electric motor 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.

17. During the operational test, the various transmission gears of the Motor Car were able to be engage without any difficulty by stepping on the clutch pedal and manually shifting the gear lever. There were no abnormal sounds heard and/or abnormal behaviour of the Motor Car's electric motor 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. See photo 2 & 23.

Conclusion

18. From my physical inspection of the Motor Car, it appears that its electric motor system, steering system, braking system and transmission system were all in serviceable condition. I 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. This is also taking into consideration that the 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 various operating systems.

19. The front right tyre and wheel rim was damaged with a burst mark on the outer side wall of the tyre and a dent on the wheel rim due to the impact sustain as a result of the accident. However, during our inspection the front right tyre was replace with a serviceable tyre by the workshop to facilitate towing and vehicle testing. The condition of the Motor Car's front left, both rear left and right 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 front left, both rear left and right tyres. The Motor Car's front left, both rear left and right tyres were observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 4.5mm to 5.2mm. The Motor Car's front right tyre with remaining tread depth of approximately 4.9mm.

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