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You're Ref: TP/IP/08997/2021 30th March 2021
Our Ref: CI/TPD21003846/P

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

MECHANICAL INSPECTION REPORT OF MOTOR CAR SKC 4135Y

1. I refer to your request on 25th March 2021 to conduct a physical inspection of a Motor Car bearing registration number SKC 4135Y (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 20th February 2021.

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 25th March 2021 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.

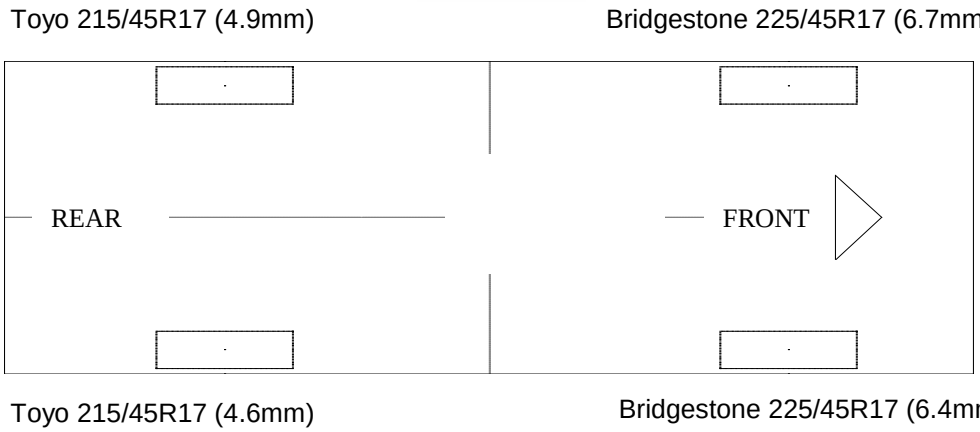
General Condition

4. The mileage of the Motor Car at the time of my inspection was 96,345km.

5. The Motor Car was observed to have sustained damage at its front portion. Its front windscreen, front bumper, front left headlamp, front left and right fender was the body parts and various engine components that were damaged as a result of the accident.

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. See photo 1 – 17 below.

Photo 1 shows the mileage of the Motor Car at the time of my inspection. The mileage observed was 96,345km.

Photo 2 shows a general view of the Motor Car's front body at the time of my inspection. The front windscreen, front bumper, front left headlamp, front left and right fender was the body parts and various engine components that 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 windscreen (circled) 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 left fender (red circle) and front left headlamp (yellow circle) as a result of the accident.

Photo 5 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 bumper (circled) as a result of the accident.

Photo 6 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 right fender (circled) as a result of the accident.

Photo 7 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 right fender (circled) as a result of the accident.

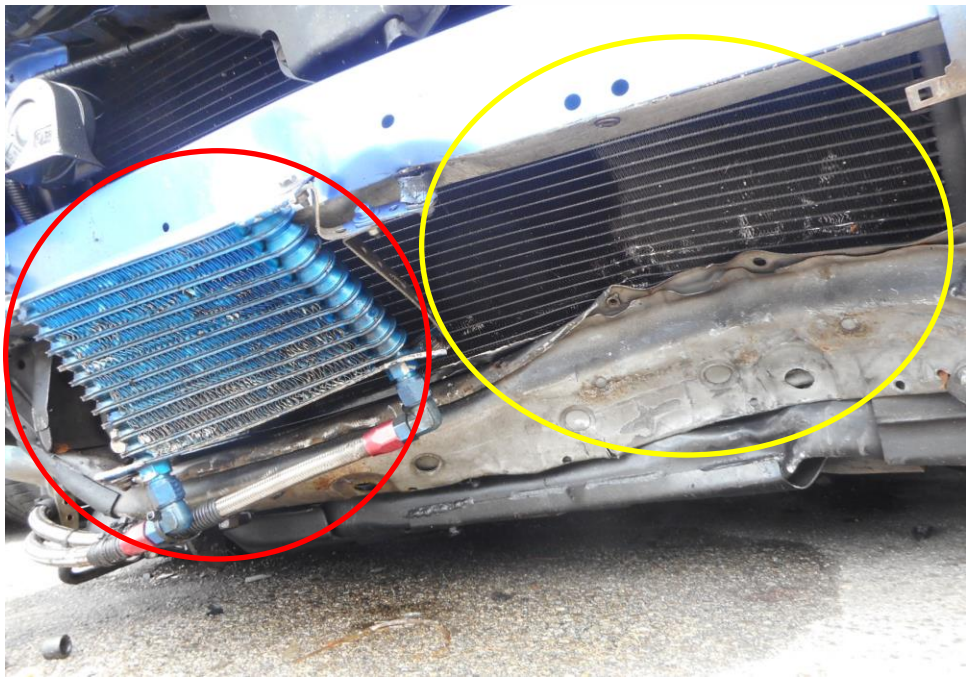


Photo 8 shows the general view of the Motor Car's front engine at the time of my inspection. The Motor Car was observed to have sustained damage at its engine coolant radiator (yellow circled) and engine oil cooler (red circle) and there was engine oil leakage as a result of the accident.

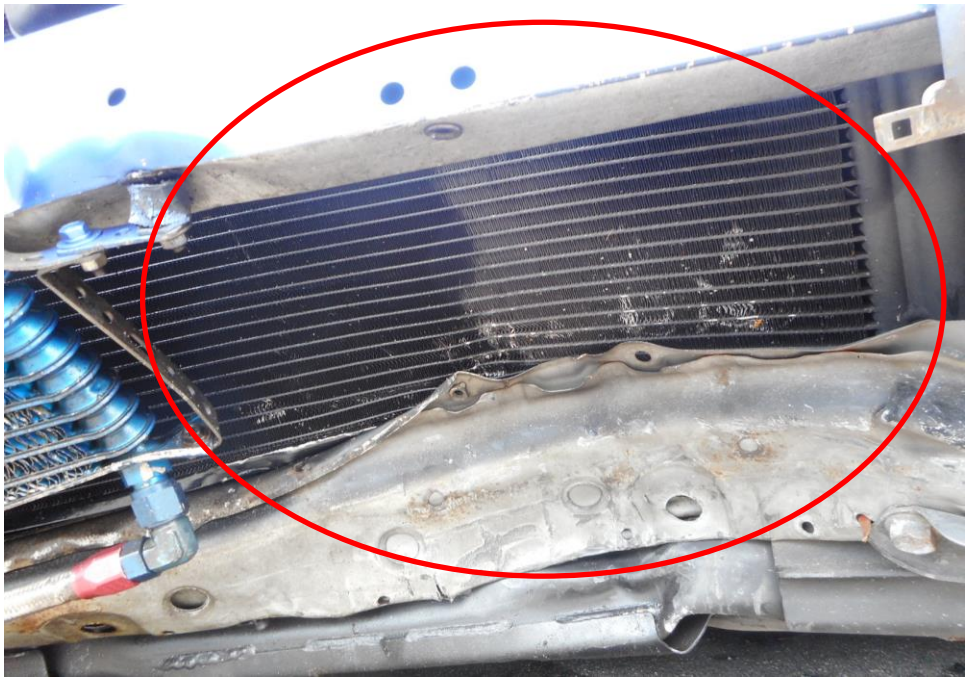


Photo 9 shows the close up view of the Motor Car's front engine at the time of my inspection. The Motor Car was observed to have sustained damage at its engine coolant radiator (circled) as a result of the accident.

Photo 10 shows the close up view of the Motor Car's front engine at the time of my inspection. The Motor Car was observed to have sustained damage at its engine oil cooler (circled) and there was engine oil leakage as a result of the accident.

Photo 11 shows a general view of the Motor Car's right body at the time of my inspection. The right portion of the Motor Car was observed to have been unaffected by the accident.

Photo 12 shows a general view of the Motor Car's left body at the time of my inspection. The left portion of the Motor Car was observed to have been unaffected by the accident.

Photo 13 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 14 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 6.4mm. 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 Car were wrapped around alloy wheel rims without any damage.

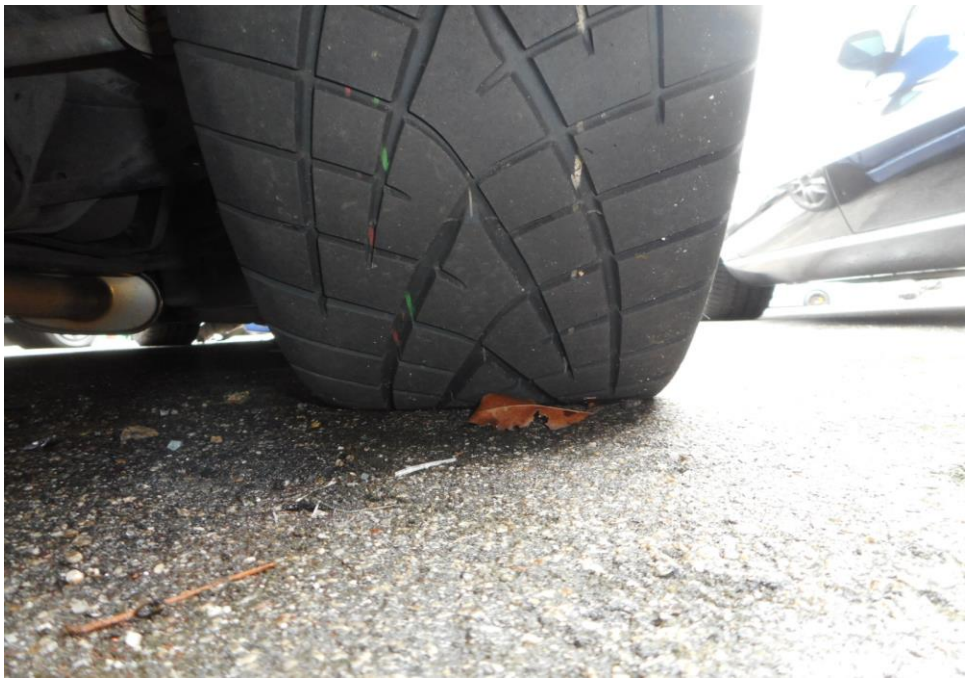


Photo 15 shows the condition of the rear right tyre of the Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 4.6mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 16 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 4.9mm. The tyre, which was wrapped around alloy wheel rim, was also observed to be sufficiently inflated for vehicular operation. The 4 tyres of the Motor Car were wrapped around standard steel wheel rims.

Photo 17 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 6.7mm. 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 Motor Car's 4 tyres.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Car, I had observed the engine coolant radiator and the engine oil cooler inside the engine compartment to be damaged by the accident. The brake fluid were found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids. However, the engine oil and engine coolant was found to be insufficient as there was leakage to this fluids as a result of the accident.

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. My subsequent checks on the underside of the Motor Car also revealed no fluid leakage. See photo 18 – 22 below.

Photo 18 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.

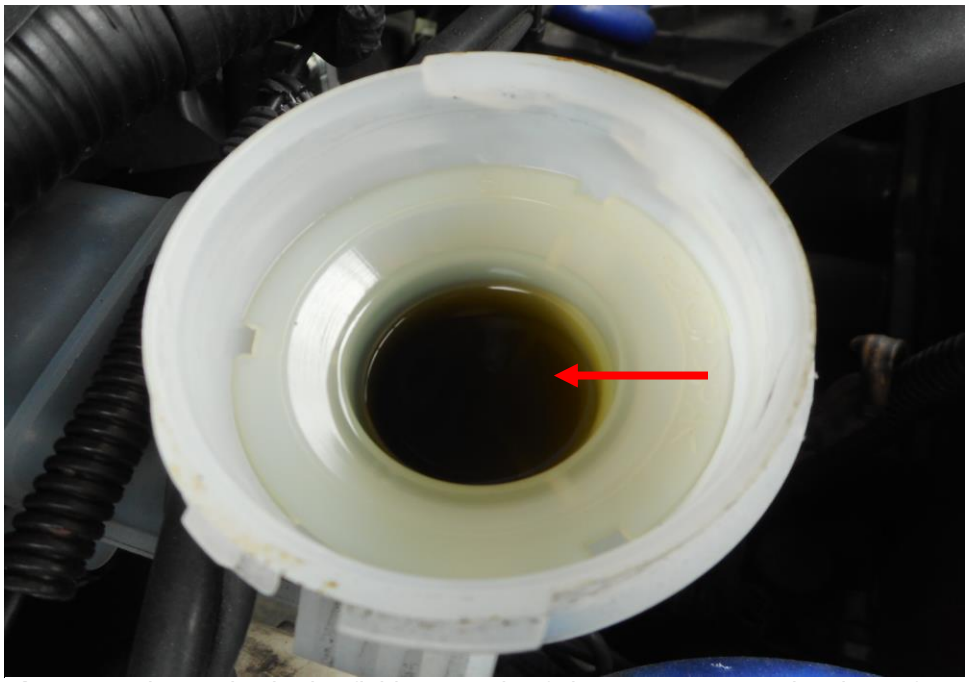


Photo 19 shows the brake fluid reservoir of the Motor Car at the time of my inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.

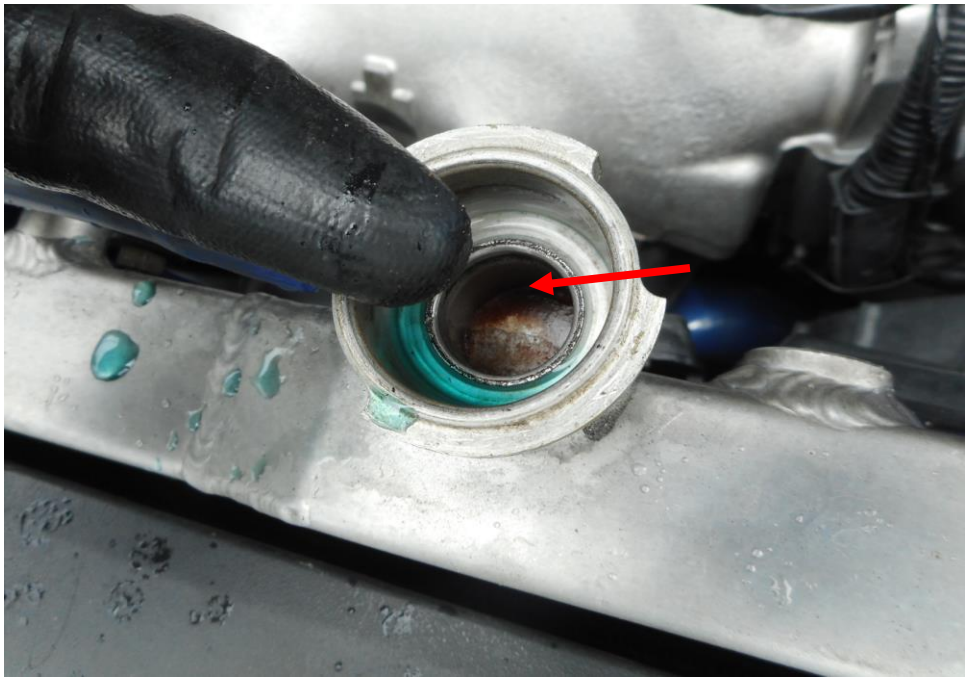


Photo 20 shows checks being carried out to the engine coolant of the Motor Car at the time of my inspection. The engine coolant was observed to be of insufficient level (arrowed) as there was a leakage from the damaged engine coolant radiator.

Photo 21 shows the engine oil dip stick of the Motor Car at the time of my inspection. The engine oil was observed to be of insufficient level as there was a leakage from the damaged engine oil cooler.

Photo 22 shows the undercarriage of the Motor Car, at the area where the engine housing and transmission housing are located. I did observed fluid leak) on the underside of the Motor Car, this leakage came from the damaged engine oil cooler as a result of the accident.

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 revealed abnormality to the steering system. I have experience resistance when turning the steering wheel left and right to full lock positions. My visual examination of the various steering components, I observed that the front right driveshaft and the front right control arm of the Motor Car was damaged as a result of the accident. However, 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 23 - 30 below.

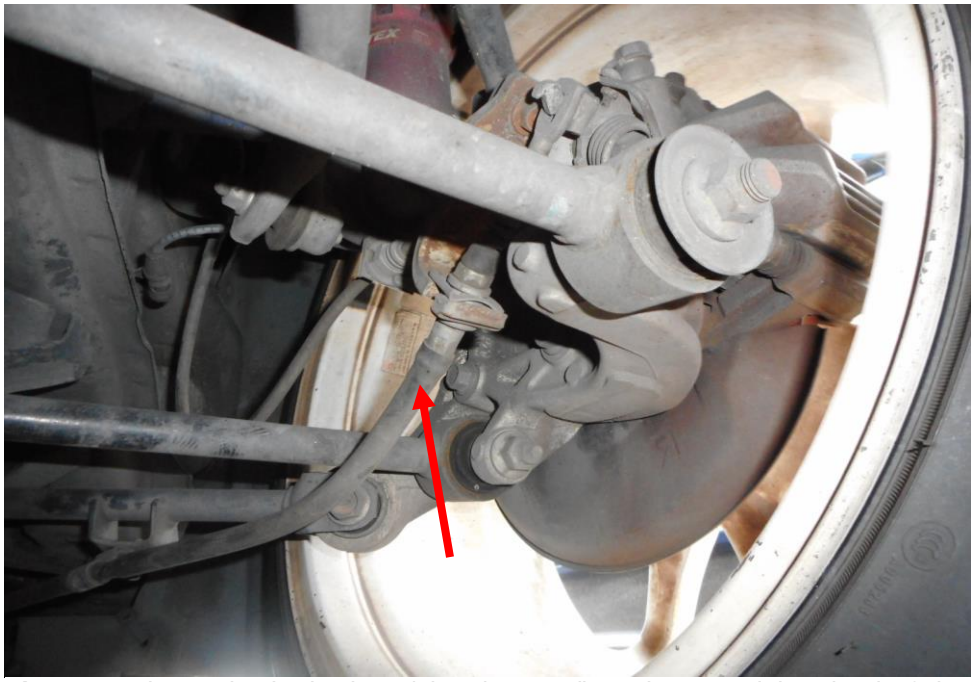


Photo 23 shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.

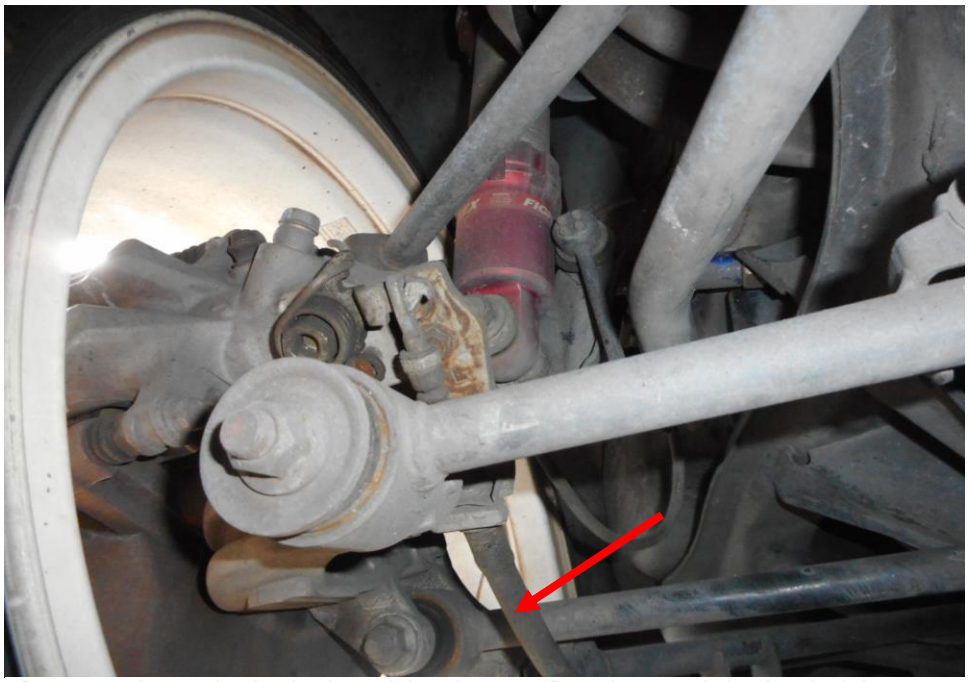


Photo 24 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Car. Static tests of the Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Car were also all found to be intact and without any visible damage.

Photo 25 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. 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.

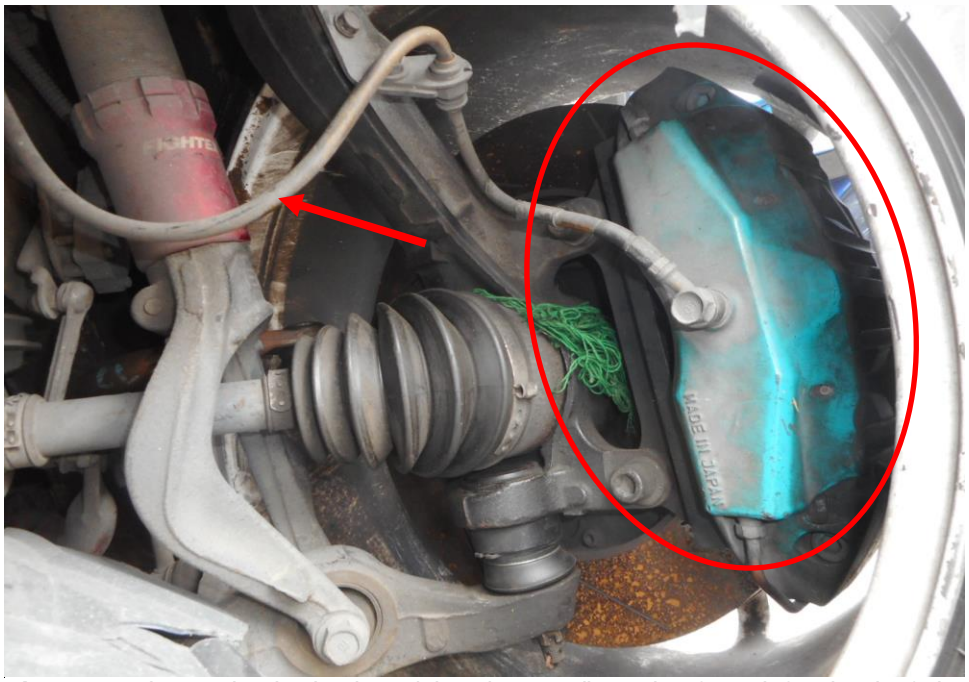


Photo 26 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage.

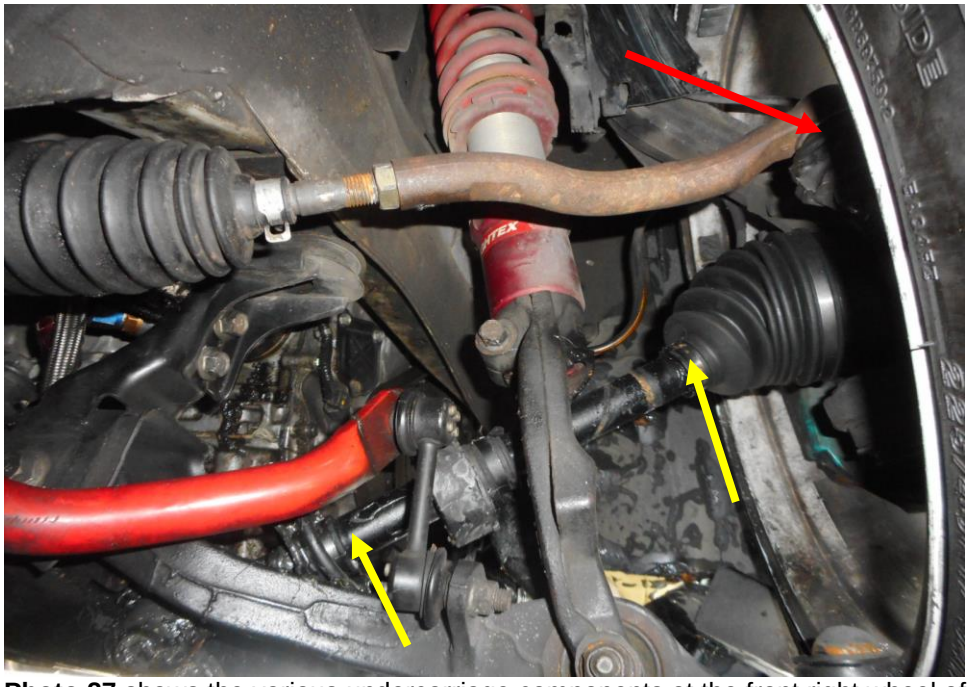


Photo 27 shows the various undercarriage components at the front right wheel of the Motor Car, in particular the steering tie rod (red arrow). The various steering components were all found to be intact, suggesting that the steering system of the Motor Car was likely to be in serviceable condition at the material time of accident. However, the front right drive shaft of the Motor Car was observed to the damaged as a result of the accident (yellow arrow).

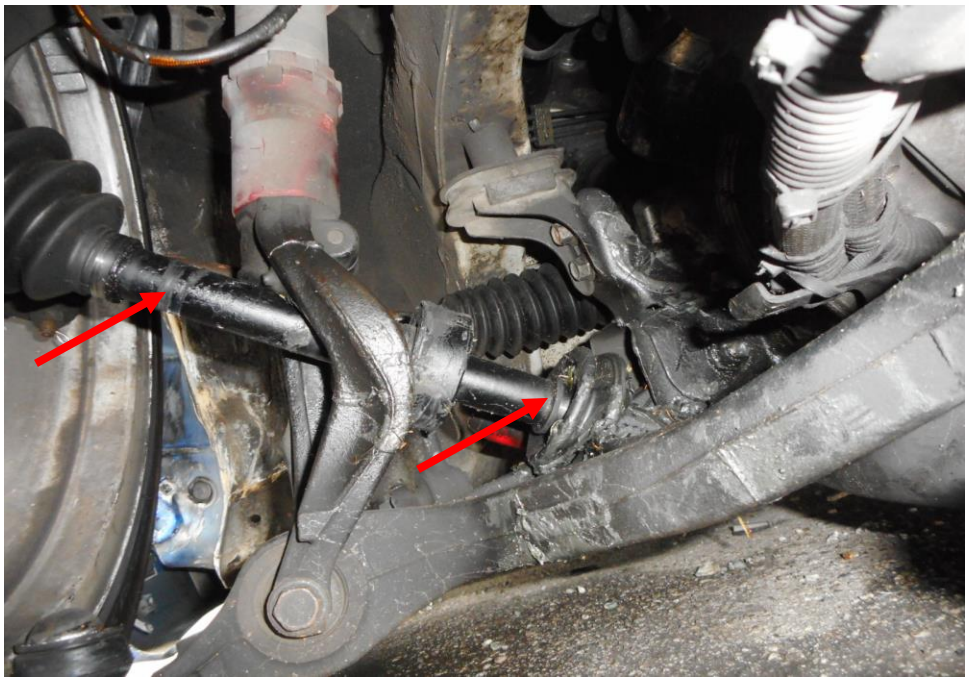


Photo 28 shows the driveshaft of the front right wheel of the Motor Car, it was observed to the damaged as a result of the accident (arrowed).

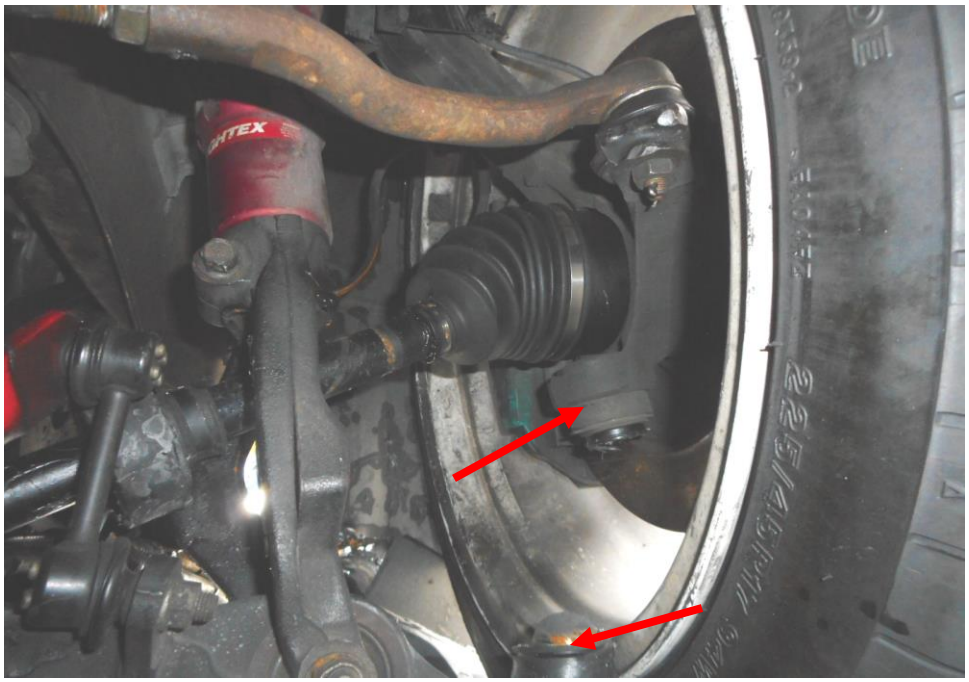


Photo 29 shows the control arm of the front right wheel of the Motor Car, it was observed to the damaged and broken off as a result of the accident (arrowed).

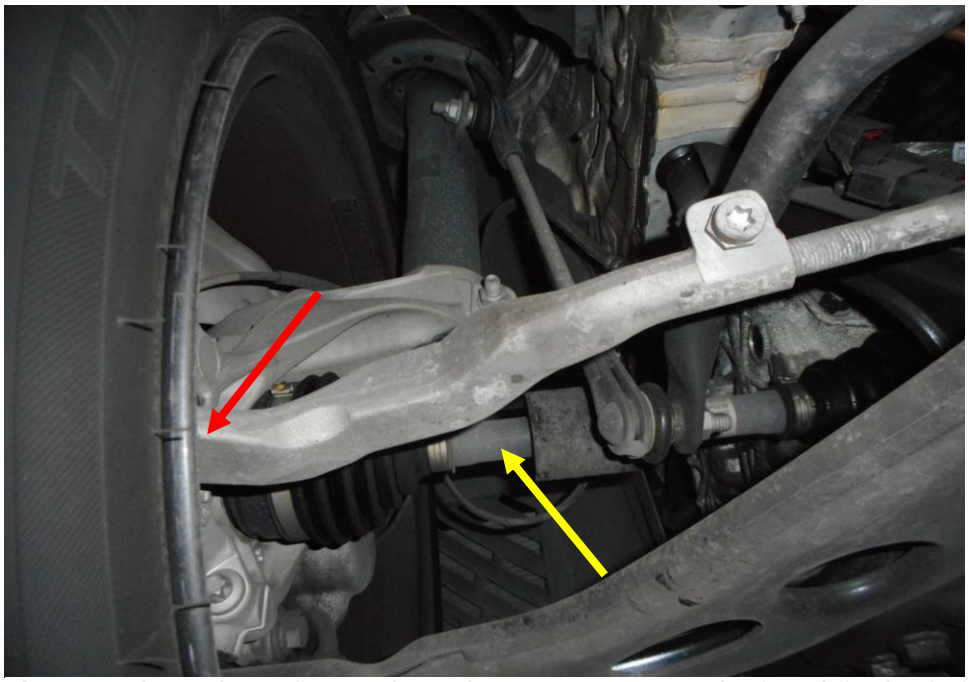


Photo 30 shows the various undercarriage components at the front left wheel of the Motor Car, which had included the steering tie rod (red arrowed) and the driveshaft (yellow arrowed). The various undercarriage components of the Motor Car were all found to be intact without any visible damage.

Electronic Safety / Warning Indicators

13. The Motor Car 's automatic self-test of the functionality of its electronic operating systems like the Anti-Lock Brake System (ABS) and Electric Power Steering System (EPS) during cranking of the engine 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. See photo 31 and 32 below.

Photo 31 shows the warning light for Anti-Lock Brake System (ABS) and Electric Power Steering System (EPS) (arrowed) appearing on the instrument panel of the Motor Car during the self-test of its various electronic operating systems when its engine was cranked.

Photo 32 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 electronic operating system of the Motor Car, like the ABS, EPS and etc.

Seat Belts

14. 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

15. Operational test to primarily determine whether there was any abnormality to the engine system, transmission system and braking system of the Motor Car could not be conducted as the damaged to the front right driveshaft had prevented me from carrying out any operational test(s).

Conclusion

16. For this particular case, I was unable to determine whether there was any possible mechanical failure to the Motor Car that may have contributed to the accident by driving, as the extent of damage that it had sustained to its front right driveshaft, front right control arm, engine oil and engine coolant leakage had prevented me from carrying out any operational test(s)

17. However, static brake tests was able to be conducted and in general our visual inspection of the mechanical components of the Motor Car’s braking system appear to suggest that its braking system was in serviceable condition at the material time of accident and there was no leakage found at the braking components of the Motor Car.

18. Our visual inspection to the steering rack and pinion, tie rods, tie rod ends and ball joints also revealed that these components were all generally in good condition and was not affected by the accident.

19. 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 4.6mm to 6.7mm.

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