

Your Ref: TP/IP/32987/2021
Our Ref : CI/TPD21007785/P

27th October 2021

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF POLICE MOTOR CAR QX 295M

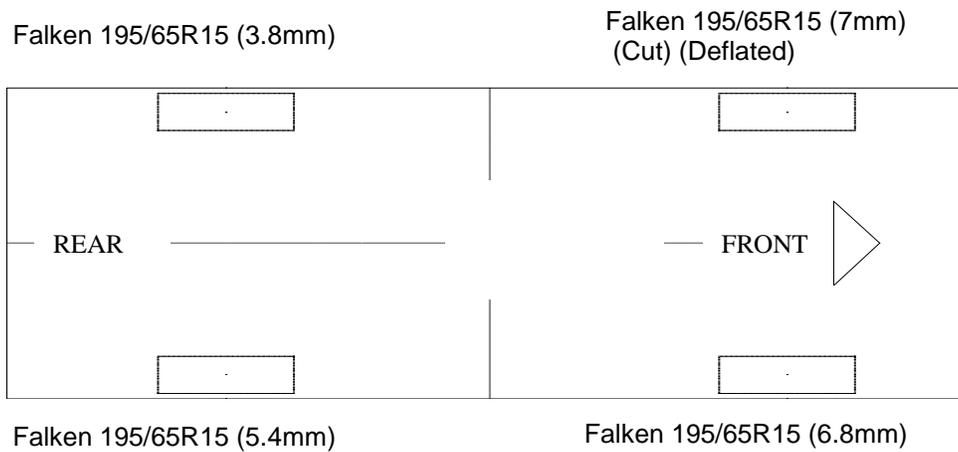
1. I refer to your request on 19th July 2021 to conduct a physical inspection of a Police Motor Car bearing registration number QX 295M (herein referred to as "**Police Motor Car**"), which was involved in a road traffic accident on 10th July 2021.
2. The objective of the inspection is to determine if there was any possible mechanical failure to the Police Motor Car that may have contributed to the accident.
3. Following the request, I had carried out a physical inspection of the Police Motor Car on 26th October 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 Police Motor Car at the time of my inspection was 387,256km.
5. The Police Motor Car was observed to have sustained damage at its front, left and rear portion. Its front bumper, front left headlamp, front left fender, left door panels and rear bumper were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

6. The condition of the Police Motor Car's front left tyre was observed to be in damaged as a result of the accident. However, the other 3 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 3 tyres. The 3 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 front left tyre and rims was observed to be damaged as a result of the accident. However the other 3 tyres were observed to be wrapped around standard alloy wheel rims that were found to be damage as a result of the accident. See photo 1 – 14 below.



Photo 1 shows the mileage of the Police Motor Car at the time of my inspection. The mileage observed was 387,256km.



Photo 2 shows a general view of the Police Motor Car's front body at the time of my inspection. The Police Motor Car was observed to have sustained damage at its front, left and rear portion. Its front bumper, front left headlamp, front left fender, left door panels and rear bumper were amongst the body parts that were damaged as a result of the accident.



Photo 3 shows the close up view of the Police Motor Car's front body at the time of my inspection. The Police Motor Car was observed to have sustained damage at its front portion. Its front bumper (yellow circle) and front left headlamp (red circle) were amongst the body parts that were damaged as a result of the accident.



Photo 4 shows the close up view of the Police Motor Car's front body at the time of my inspection. The Police Motor Car was observed to have sustained damage at its front portion. Its front left fender (circled) were amongst the body parts that were damaged as a result of the accident.



Photo 5 shows a general view of the Police Motor Car's left body at the time of my inspection. The Police Motor Car was observed to have sustained damage at its left portion. Its right side skirts were amongst the body parts that were damaged as a result of the accident.



Photo 6 shows a close up view of the Police Motor Car's left body at the time of my inspection. The Police Motor Car was observed to have sustained damage at its left portion. Its left door panels (circled) were amongst the body parts that were damaged as a result of the accident.



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



Photo 8 shows the general view of the Police Motor Car's rear body at the time of my inspection. The Police Motor Car was observed to have sustained damage at its rear portion. Its rear bumper were amongst the body parts that were damaged as a result of the accident.



Photo 9 shows a close up view of the Police Motor Car's left body at the time of my inspection. The Police Motor Car was observed to have sustained damage at its rear portion. Its rear bumper (circled) were amongst the body parts that were damaged as a result of the accident.



Photo 10 shows the condition of the front left tyre of the Police Motor Car, which was observed to be unserviceable condition with remaining tread depth of approximately 7mm. The tyre was observed with cut mark(s) on the outer sidewalls and there was damage observed on the wheel rims as a result of the accident.



Photo 11 shows the close up view of the condition of the front left tyre of the Police Motor Car, which was observed to be unserviceable condition. The tyre was observed with cut mark(s) on the outer sidewalls and there was damage observed on the wheel rims (circled) as a result of the accident.



Photo 12 shows the condition of the rear left tyre of the Police Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 3.8mm. The tyre was observed with cut marks and wheel rim damage as a result of the accident, however it was observed to be sufficiently inflated for vehicular operation



Photo 13 shows the condition of the rear right tyre of the Police Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 3.8mm. The tyre was observed with cut marks and wheel rim damage as a result of the accident, however it was observed to be sufficiently inflated for vehicular operation



Photo 14 shows the condition of the front right tyre of the Police Motor Car, which was observed to be in serviceable condition with remaining tread depth of approximately 6.8mm. The tyre was observed with cut marks and wheel rim damage as a result of the accident, however it was observed to be sufficiently inflated for vehicular operation

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Police 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, 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. 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.
10. 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 Police Motor Car.
11. My subsequent checks on the underside of the Police 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 Police Motor Car were all observed to be intact and without any visible damage. See photo 15 – 19 below.



Photo 15 shows a general view of the Police 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 16 shows the brake fluid reservoir of the Police Motor Car at the time of my inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.

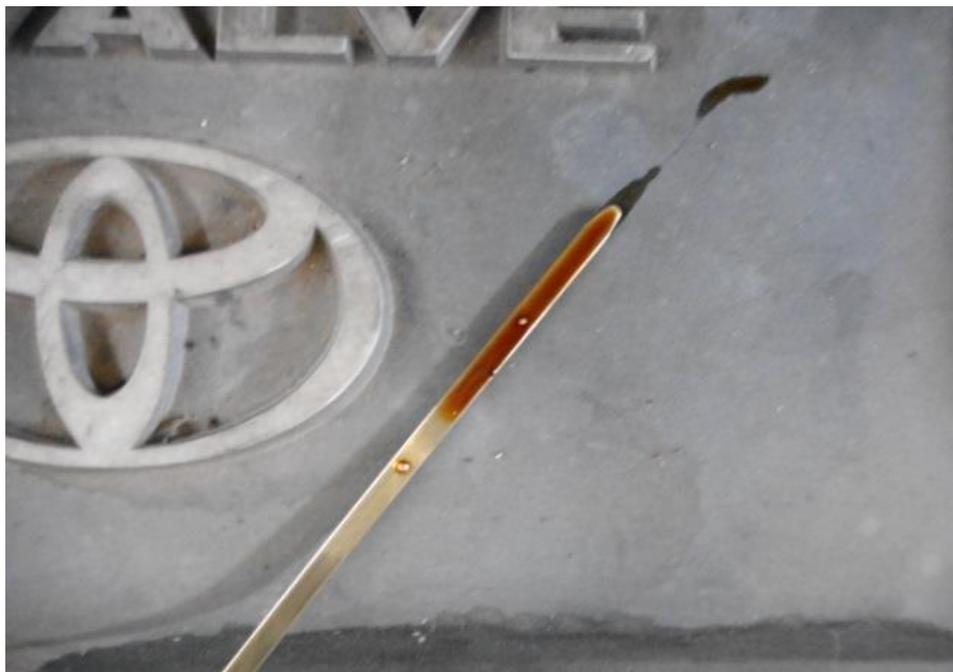


Photo 17 shows the engine oil dip stick of the Police Motor Car at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

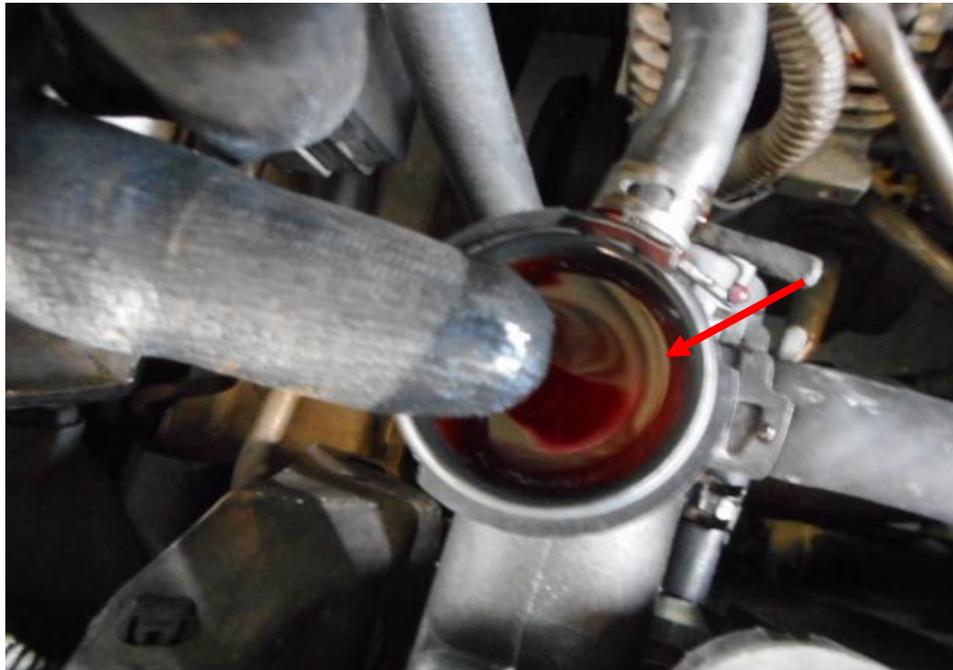


Photo 18 shows checks being carried out to the engine coolant of the Police Motor Car at the time of my inspection. The engine coolant was observed to be of sufficient level (arrowed) and without any visible contamination.



Photo 19 shows the undercarriage of the Police Motor Car, at the area where the engine 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 Police Motor Car.

Braking System & Steering System

12. Static brake tests conducted on the Police 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 Police Motor Car. The braking system of the Police 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.
13. Static test on the steering system of the Police Motor Car was conducted and revealed abnormality as we observed that the front left tie rod was bent as a result of the accident. However, my visual examination of the other various steering components which had included the steering rack and pinion, the right tie rod ends and ball joints revealed that these components were all generally in good condition. See photo 20 - 25 below.

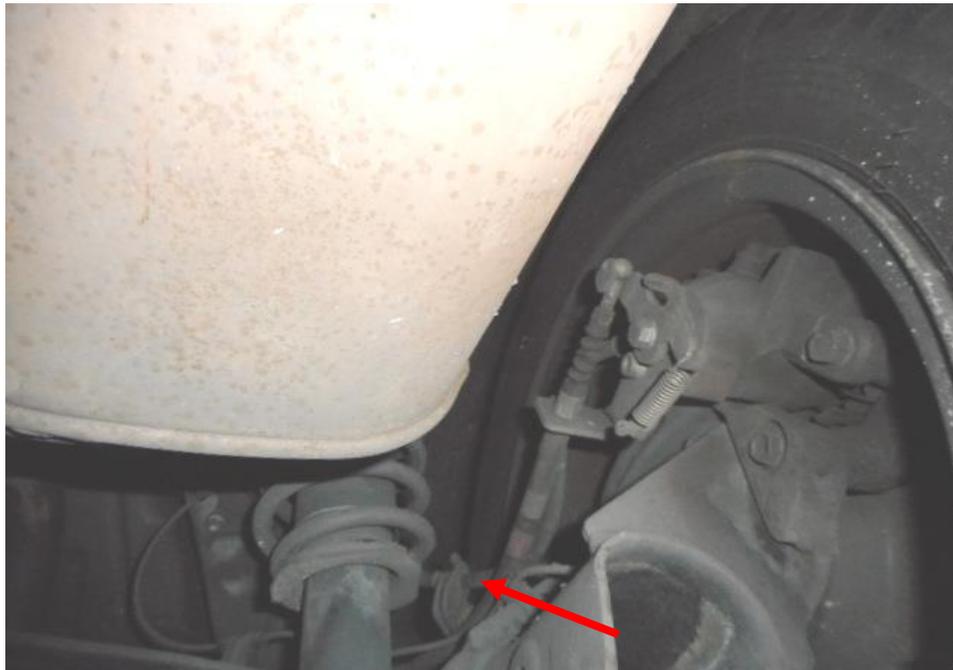


Photo 20 shows the brake hose/pipe (arrowed) at the rear right wheel of the Police Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible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

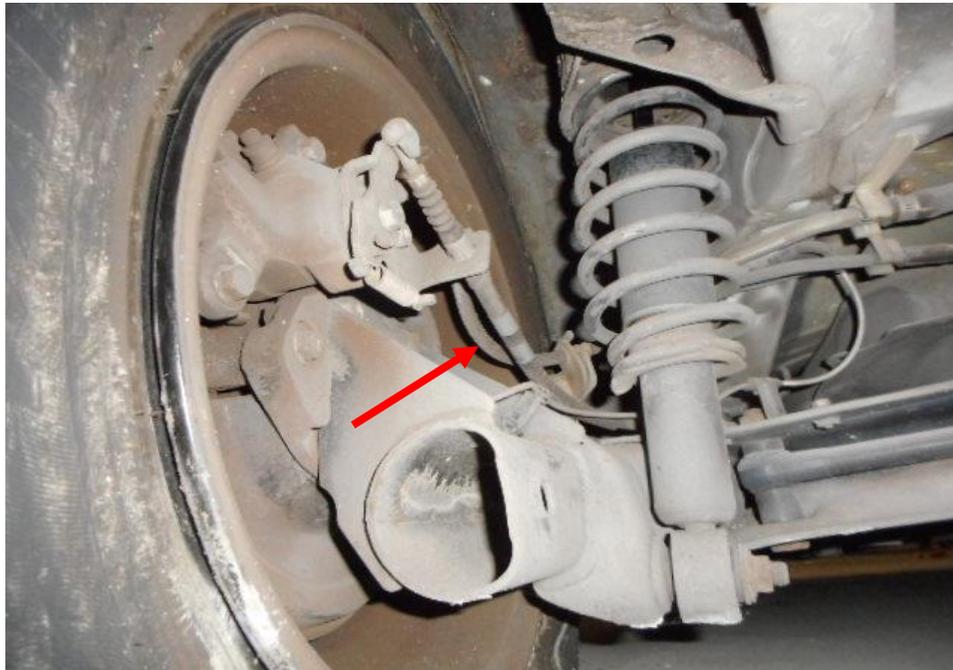


Photo 21 shows the brake hose/pipe (arrowed) at the rear left wheel of the Police Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Police Motor Car. Static tests of the Police Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Police Motor Car were also all found to be intact and without any visible damage.



Photo 22 shows the brake hose/pipe (arrowed) at the front right wheel of the Police Motor Car. I did not observe any leakage of brake fluid at the time of my inspection of the Police Motor Car. Static tests of the Police Motor Car's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Police Motor Car were also all found to be intact and without any visible damage.



Photo 23 shows the brake hose/pipe (arrowed) at the front left wheel of the Police 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 24 shows the various undercarriage components at the front left wheel of the Police Motor Car, in particular the steering tie rod (arrowed). The various steering components were all found to be bent as a result of the accident.

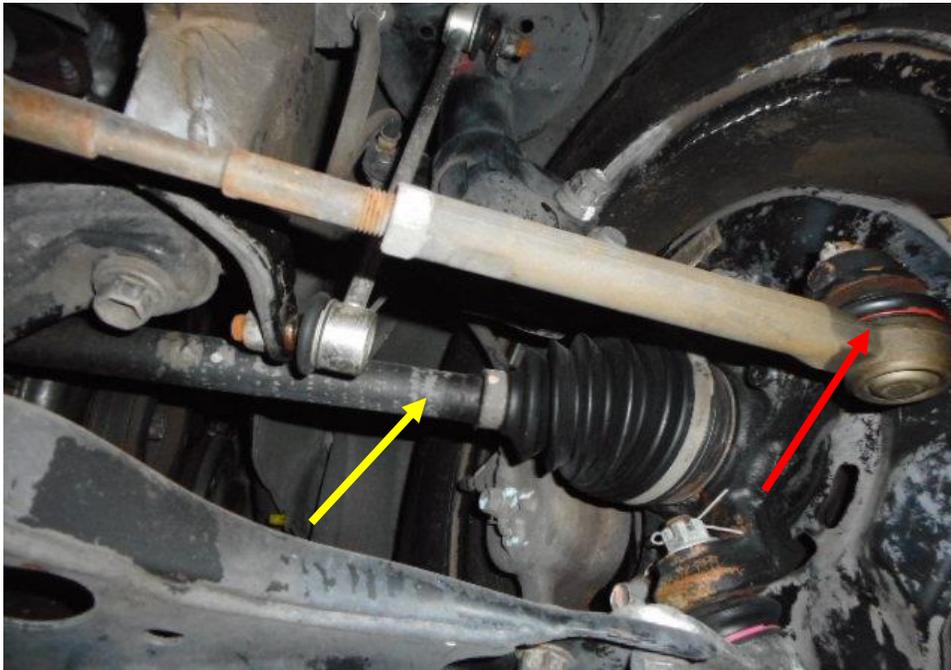


Photo 25 shows the various undercarriage components at the front right wheel of the Police Motor Car, in particular the steering tie rod (red arrow) and driveshaft (yellow arrow). The various steering components were all found to be intact, suggesting that the steering system of the Police Motor Car 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 Police Motor Car.

Electronic Safety / Warning Indicators

14. The Police Motor Car 's automatic self-test of the functionality of its electronic operating systems like the Anti-Lock Brake System (ABS) and Supplemental Restraint System (SRS) 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 26 & 27 below.



Photo 26 shows the warning light for Anti-Lock Brake System (ABS), Supplemental Restraint System (SRS) (arrowed) appearing on the instrument panel of the Police Motor Car during the self-test of its various electronic operating systems when its engine was cranked.



Photo 27 shows no warning lights illuminated on the instrument panel of the Police Motor Car after the engine was cranked. This would suggest that there was no abnormality to the electronic operating system of the Police Motor Car, like the ABS, SRS and etc.

Seat Belts

15. The front left and front right seat belts of the "Police 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 Police Motor Car

16. An operational test by driving the Police Motor Car to primarily determine whether there was any abnormality to the engine system, transmission system and braking system of the Police Motor Car could not be conducted given the extent of damage that it had sustained to its front left tyre and rims had prevented me from carrying out any operational test(s).

Conclusion

17. For this particular case, I was unable to determine whether there was any possible mechanical failure to the Police Motor Car that may have contributed to the accident. The extent of damage that it had sustained had prevented me from carrying out any operational test(s).

18. However, static brake was able to be conducted and in general our visual inspection of the mechanical components of the Police 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 Police Motor Car.

19. The front left tyre and wheel rim of the Police Motor Car were found to be damaged as a result of the accident. However, the other 3 tyres were found to be serviceable condition as 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 3 tyres. The 4 tyres were also observed with remaining tread depth of approximately 3.8mm to 7mm.

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