

You're Ref: TP/IP/35857/2020  
Our Ref: CI/TPD20012453/P

19<sup>th</sup> January 2021

**Fatal Accident Investigation Team**

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

**MECHANICAL INSPECTION REPORT OF MOTOR CAR SKF 2148H**

1. I refer to your request on 11<sup>th</sup> November 2020 to conduct a physical inspection of a Motor Car bearing registration number SKF 2148H (herein referred to as "**Motor Car**"), which was involved in a road traffic accident on 21<sup>st</sup> August 2020.
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 18<sup>th</sup> January 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**

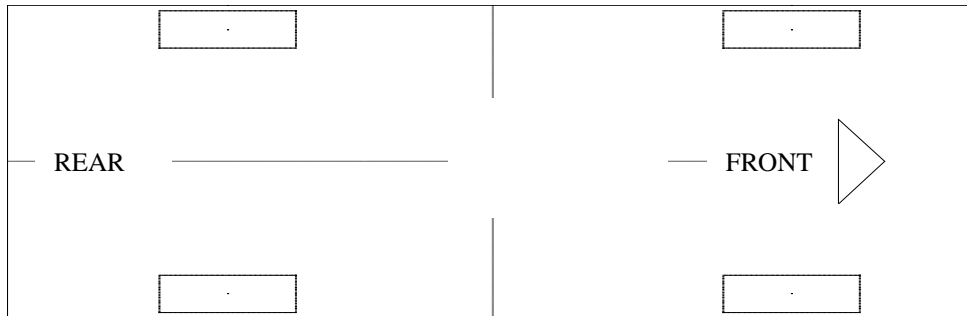
4. The mileage of the Motor Car mileage was not recorded as the engine was not able to be started up despite multiple attempts in jumpstarting it.
5. The Motor Car was observed to have sustained damage at its rear and left portion. Its rear windscreen, rear bumper, left body panel, left door, rear left brake lamp were damaged as a result of the accident.

**Tyres and Wheel Rims**

6. The 4 tyres of the Motor Car were observed to be in serviceable condition and sufficiently inflated for vehicular operation. 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 tyre brand, tyre size and remaining tread depth of the 4 tyres of the Motor Car were recorded as follows:-

Arivo 195/65R15 (6mm)

Yokohama 195/65R15 (1.8mm)



Arivo 195/65R15 (6.2mm)

Yokohama 195/65R15 (3.4mm)

7. The 4 tyres were observed to be wrapped around standard alloy wheel rims that were found to be without any damage. See photo 1 – 9 below.



**Photo 1** shows a general view of the Motor Car's rear body at the time of my inspection. The rear and left portion of the Motor Car was observed to have been damaged by the accident. Its rear windscreen, rear bumper, left body panel, left door, rear left brake lamp were damaged as a result of the accident.



**Photo 2** shows the close up view of the Motor Car's rear body at the time of my inspection. The rear windscreen (circled) and the rear body panel (arrowed) was observed to have been damaged by the accident.



**Photo 3** shows the close up view of the Motor Car's left body at the time of my inspection. The rear bumper (yellow arrow), rear left brake lamp (red arrow) and the left door and body panels (circled) of the Motor Car was observed to have been damaged by the accident.





**Photo 4** shows a general view of the Motor Car's front body at the time of my inspection. The front portion of the Motor Car was observed to be unaffected by the accident.



**Photo 5** 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 be unaffected by the accident.



**Photo 6** 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 3.4mm. 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 standard alloy wheel rims without any damage.



**Photo 7** 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 6.2mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).





**Photo 8** 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 6mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).



**Photo 9** 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 1.8 mm. 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 all the parts and components inside the engine compartment to be intact and unaffected by the accident. The engine coolant, brake fluid and engine oil 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 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 10 – 14 below.

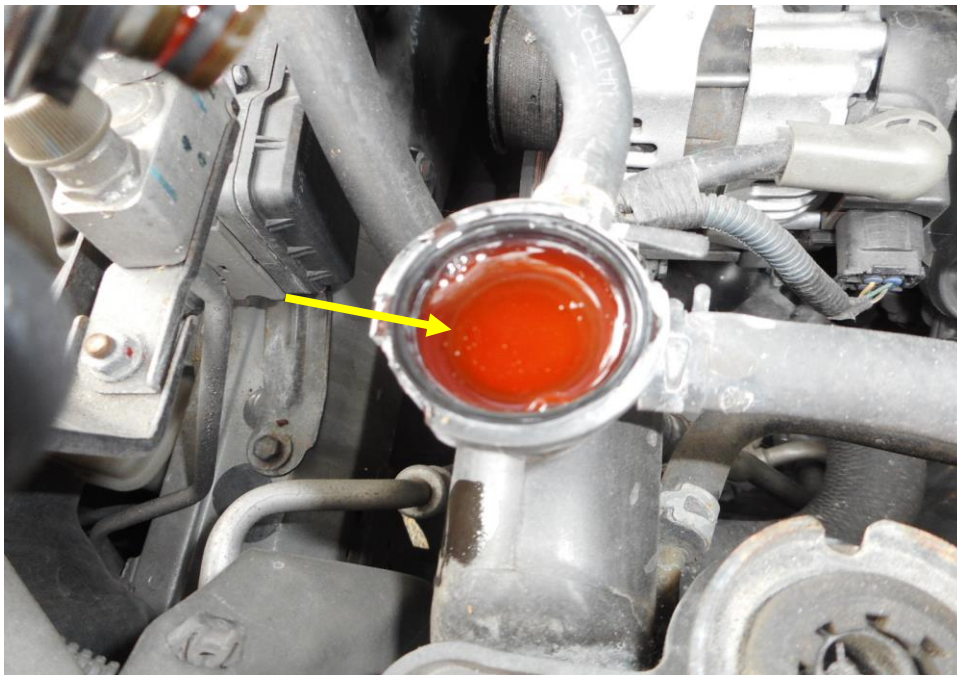


**Photo 10** shows a general view of the Motor Car's engine compartment. The various parts and components inside the engine compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fluid leakage and/or fluid stain within the engine compartment.





**Photo 11** 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 12** 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 sufficient level (arrowed) and without any visible contamination.





**Photo 13** shows the engine oil dip stick of the Motor Car at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.



**Photo 14** shows the undercarriage of the 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 Motor Car.

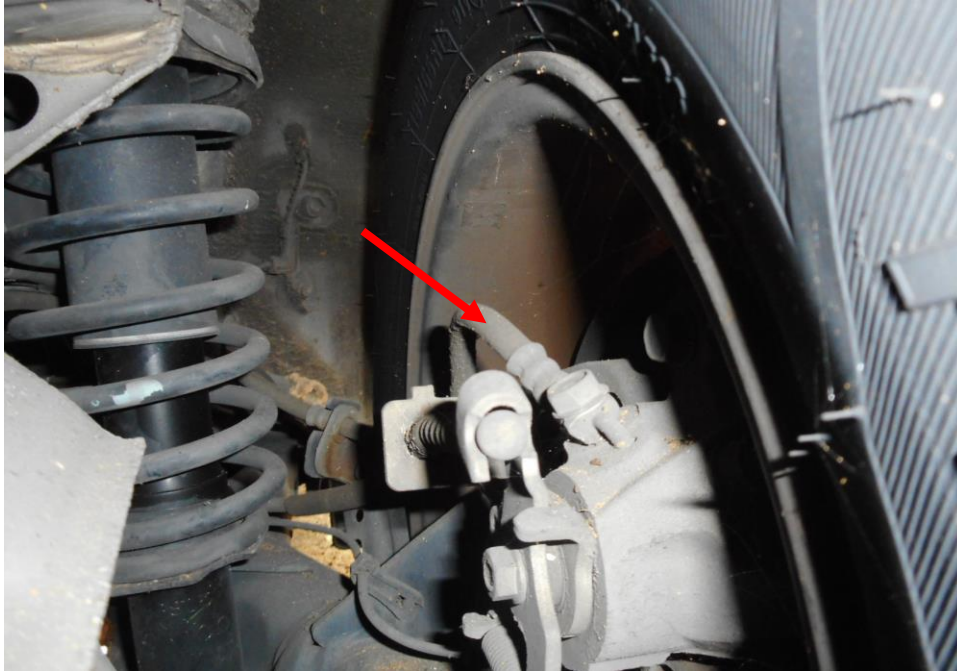
## Braking System & Steering System

11. For this inspection, I was not able to conduct any tests on the steering system of the Motor Car due to the Motor Car running on electric power steering (EPS) which requires the Motor Car to be started. (Unable to be started)
12. 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.
13. Static test on the accelerator pedal was conducted and it did not reveal any abnormality. The accelerator pedal had responded well to the test conducted. There was also no abnormal movement of the brake pedal when it was depressed and released.
14. My visual examination of the various steering and braking components which had included the rack and pinion, tie rods, tie rod ends and ball joints, brake hoses and brake pipes had revealed that these components were all generally intact. See photo 15 - 21 below.



**Photo 15** shows the jumpstarting process of the Motor Car's engine. The engine of the Motor Car was unable to be jumpstarted up despite multiple attempts in starting it.





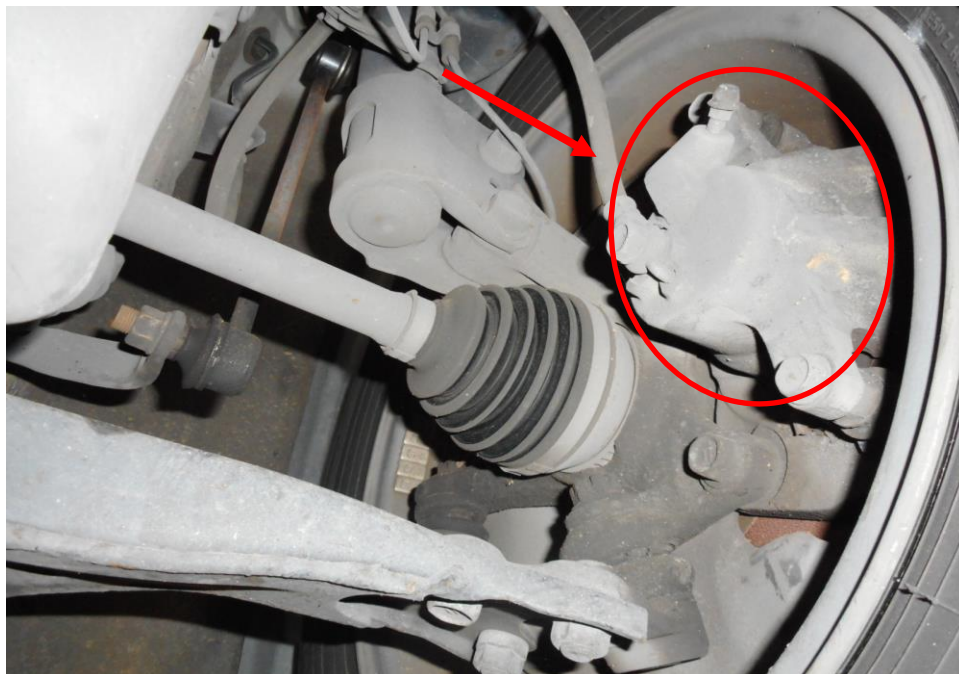
**Photo 16** shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc. had revealed all to be intact and without visible damage.



**Photo 17** 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 18** 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.

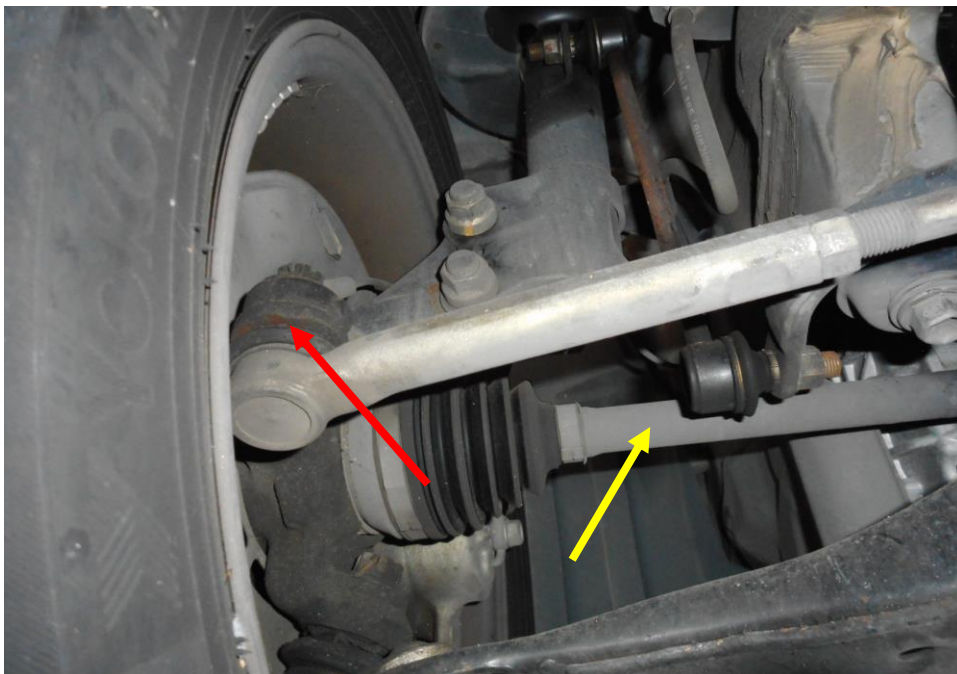


**Photo 19** shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Car. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage.





**Photo 20** 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. There was also no sign of fluid stain observed on the various undercarriage components at the front right wheel of the Motor Car.



**Photo 21** shows the various undercarriage components at the front left wheel of the Motor Car, which had included the steering tie rod (red arrow) and drive shaft (yellow arrow). The various undercarriage components of the Motor Car were all found to be intact without any visible damage.

**Electronic Safety / Warning Indicators**

15. The Motor Car's automatic self-test of the functionality of its various electronic operating systems was not able to be conducted as the engine was not unable to be started up.

**Seat Belts**

16. 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**

17. 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 engine was not able to be started up.

**Conclusion**

18. 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. The extent of damage that it had sustained had prevented me from carrying out any operational test(s) and/or static test(s) to its engine system, transmission system, steering system and suspension system.
19. However static brake tests 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.



20. The 4 tyres fitted on 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 1.8mm – 6.2mm.



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