

Your Ref: DV.2020.221290.AXA
Our Ref : CI/LAW21007134/D

03 July 2021

ComLaw LLC

64 Cecil Street #06-01 / #03-02
IOB Building
Singapore 049711

**COMMENTS AND OPINIONS ON THE BREAKDOWN TO THE MOTOR CAR
SFJ 1223T**

1. I refer to your request dated 13 April 2021.
2. I have reviewed the provided documents: -
 - a) Affidavit of Evidence in Chief of Ang Zhi Qiang dated 17 March 2021, driver of the motor car SFJ 1223T;
 - b) Supplementary Affidavit of Evidence in Chief of Ang Zhi Qiang dated 01 July 2021, driver of the motor car SFJ 1223T;
 - c) Affidavit of Evidence in Chief of Khoo Heng Lai dated 17 March 2021, owner of the motor car SFJ 1223T;
 - d) Affidavit of Evidence in Chief of Neo Gim Seong dated 17 March 2021, mechanic and sole proprietor of NGS trading, a car repair workshop;
 - e) Affidavit of Evidence in Chief of Chandra Kumaran Rao A/L Krishnan Moorthy dated 17 March 2021, witness to the accident;
 - f) Affidavit of Evidence in Chief of Mohammad Wirman Bin Saptu dated 17 March 2021, witness to the accident;
 - g) 102 coloured photographs showing the damaged condition of the motor car SFJ 1223T; and
 - h) A 1 minute 20 seconds video footage showing the events leading up to the accident.
3. This is a case of a road traffic accident whereby a motorcycle, JLX 215, had collided into the rear of a motor car SFJ 1223T that had broken down and was stationary on the extreme right lane of SLE towards BKE on 24 July 2017 at about 1045hrs thereabouts.

4. For completeness, the motor car SFJ 1223T (herein referred to as “**Motor Car**”) is no longer available for inspection as it had been de-registered. My comments and opinions, with respect to the breakdown of the Motor Car, are hence based purely on the relevant information contained in the documents set out in paragraph 2 above.

Comments & Opinions

5. The Motor Car was an Audi S4 saloon motor car, first registered in June 2010 and has single ownership since. It had been used for approximately 7 years 1 month as at the time of this particular accident. The last known mileage was 172,810km, recorded on 10 January 2017. Refer to NGS Trading’s cash sales invoice CS201701-12 dated 10 January 2017.
6. Given its age and mileage, it would not be uncommon for the Motor Car to experience fair, wear and tear issues. This is in line with the cash sales invoices of NGS Trading for the period November 2015 to 27 September 2017 (for work done on 15 June 2017). In fact, basing on these cash sales invoices, the Motor Car can be considered to be reasonably well maintained/serviced in the 1 year 8 months leading up to the accident. Issues relating to fluid leakage, cooling system, transmission system and braking system amongst others were rectified with genuine Audi parts replacement.
7. There was a total of 13 visits to NGS Trading between November 2015 to June 2017. Almost all of the visits were to rectify issues experienced by the Motor Car, brought about by fair, wear and tear of parts due to age and mileage, and also for general servicing. The frequency of visits shows the owner/driver’s mindset and proactiveness in the maintenance aspect of the Motor Car ie making necessary rectifications as and when it is required in order to maintain the Motor Car in its optimum operating condition.
8. The documents provided to me did not state the cause of breakdown to the Motor Car however in his Affidavit of Evidence in Chief dated 17 March 2021, the driver had described that as he was driving the Motor Car, it suddenly lost power and stalled just after. Attempt(s) to re-start the engine was unsuccessful.
9. With the limited information, I had sought further clarification from the driver of the Motor Car through ComLaw LLC, in particular whether there was any warning light(s) appearing on the instrument panel before the Motor Car lost power, and/or after the engine had stalled. Also, any further information that he could recall with respect to the operational behaviour of the Motor Car.

10. A supplementary Affidavit of Evidence in Chief of the driver of the Motor Car dated 01 July 2021 was thereafter provided to me for review. The driver stated that he did not notice whether there was any warning light(s) and/or warning sound(s) when the Motor Car started losing power. The time frame between the moment he realized the loss of power to the moment the Motor Car stalled was short. Re-starting the Motor Car's engine after it stalled was not successful. The driver also stated that after the accident, he had managed to start the engine of the Motor Car normally. There was no warning light(s) and/or warning sound(s). He drove the Motor Car forward for a few metres before stopping the Motor Car.
11. In summary, basing on the driver's recollection, whilst driving the Motor Car it had suddenly lost power and shortly thereafter the engine stalled. He could not re-start the engine. The accident then occurred. After the accident, he was able to re-start the engine normally and there was no warning light(s). He was even able to drive the Motor Car forward for a few metres before stopping.
12. It is not often that a motor vehicle is able to be re-started normally and driven forward (without any rectification work done) when initial attempt(s) to re-start the motor vehicle was unsuccessful after experiencing loss of power and stalling. Such occurrence indicates to me that the motor vehicle had likely experience an issue of electronic nature that was intermittent.
13. Modern day motor vehicles like the Motor Car are equipped with multiple electronic sensors and wirings that allow information to be transmitted between the various control modules in order for the motor vehicle to operate efficiently. These electronic sensors include the crankshaft position sensor, camshaft position sensor, throttle position sensor, airflow sensor, wheel speed sensor, impact sensor, transmission pressure sensor, temperature sensor, fuel pressure sensor, tyre pressure sensor etc. Various control modules that can be typically found in modern day motor vehicles are the engine control module, transmission module, ABS control module and SRS control module amongst others.
14. Mechanically, the engine and transmission of the Motor Car seems to be in working condition as the Motor Car was able to be started and driven forward for a few metres. Hence, the loss of power could be attributed to a sudden malfunction of a sensor or sensors that affects the operation of the Motor Car's engine or transmission.

15. Some of the sensors affecting the operation of the engine and transmission are the crankshaft position sensor, camshaft position sensor, throttle position sensor, airflow sensor, transmission pressure sensor, temperature sensor and fuel pressure sensor amongst others. It is not unusual for such electronic sensors to first malfunction intermittently before it completely fails. However, without the benefit of any detail checks and/or an electronic scan of the various control modules of the Motor Car, the sensor that had potentially malfunctioned, causing the loss of power and breakdown of the Motor Car could not be determined.
16. In general, warning light(s) will be illuminated on the instrument panel prior to a motor vehicle breaking down. As commented earlier in paragraph 13, modern day motor vehicles are equipped with multiple sensors that electronically monitors the operating characteristic of the different systems fitted on the motor vehicle. The warning light basically inform or alert the owner/driver of an issue to the system that the warning light symbolizes. The common warning lights that can be found fitted on modern day motor vehicles are for the engine system, transmission system, traction control system, engine cooling system, ABS system, SRS system, charging system and for some motor vehicles, the electric power steering system, tyre pressure system and collision prevention system, if fitted.
17. If there is an electronic fault to a sensor or breakdown of a component within the system, like for example the fuel pump motor stops functioning and is unable to supply fuel to the engine for engine combustion, the engine check light will appear because the engine is unable to operate without fuel. Or if a bulb is blown, a lighting warning light will be illuminated. Hence, modern day motor vehicles like the Motor Car have the capability to warn or alert the owner/driver of a potential issue.
18. Typically, a check engine warning light or transmission warning light will appear on the instrument panel of a motor vehicle in the event of a potential issue to the engine and transmission. The duration between first illumination of these warning lights and start of malfunction signs or symptoms can be very short. In some instances, warning lights only appear after signs or symptoms of the malfunction.

19. Like most electronic devices, malfunction of an electronic sensor of a motor vehicle can happen suddenly and without any physical pre-malfunction signs or symptoms. For example, a motor vehicle may suddenly not start after overnight parking despite no abnormality experienced during the last driving. Or in this case, a sudden loss of power is experienced without the Motor Car displaying any pre-malfunction signs or symptoms.
20. The lack of pre-malfunction signs or symptoms would make it difficult for a owner/driver to send the motor vehicle to a workshop for rectification of the issue before malfunction occurs or to safely manage the motor vehicle to the side of a roadway (if driving) in order to not cause obstruction to road users. In fact, the Motor Car stopping on the extreme right lane of SLE due to breakdown is not an uncommon situation/sight that can be seen along local roadways. Note also that the vehicular traffic along the stretch of road where the accident occurred was relatively heavy as seen from the video footage, which had made it difficult for the driver to reasonably manage/manoeuvre the Motor Car to the road shoulder prior to its engine stalling.
21. Motor vehicles of similar age and mileage as the Motor Car tend to experience fair, wear and tear issues at a higher frequency rate. The frequency rate is enhanced if the motor vehicle is not regularly maintained or serviced or if the owner/driver ignores replacement advice due to cost.
22. For the Motor Car, it is reasonably well maintained and serviced (refer to paragraph 6 above). The owner/driver had also demonstrated relatively good mindset and proactiveness towards maintaining the Motor Car in its optimum operating condition (refer to paragraph 7 above). Hence it would be reasonable to suggest that the owner/driver was not aware that the Motor Car had issues when the driver first started driving the Motor Car on the day of breakdown. In other words, I would not expect the driver to start driving or continuing to drive the Motor Car if he had known that there was issue(s) and/or if there was illumination of warning light(s).

Conclusion

23. In summary, I am of the opinion that the breakdown of the Motor Car on 24 July 2017 was likely due to an intermittent malfunction of electronic nature to one or more of its electronic sensors that affects the operation of the Motor Car's engine or transmission.

24. The malfunction had possibly occurred suddenly without any pre-malfunction signs or symptoms till immediately before or at the time of power loss. A warning light had likely appeared on the instrument panel of the Motor Car just before or at the time the Motor Car started losing power.
25. My analysis of the documents provided, in particular the documents relating to the maintenance and servicing of the Motor Car, had indicated that the Motor Car was reasonably well maintained. The documents relating to the maintenance and servicing aspect also indicates to me that the driver would have unlikely driven the Motor Car if he had known that there was an issue(s).
26. My comments and opinions contain in this report are based on the relevant information from documents that were provided to me and is subject to review upon additional information and/or documents that may be forthcoming.

**Ang Bryan Tani***AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA**Senior Technical Investigator**Technical Investigation & Accident Reconstructionist (SAE-A)*

DISCLAIMER OF LIABILITY TO THIRD PARTIES:- This Report is made solely for the use and benefit of the Client named on the front page of this Report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part, does so at his or her own risk.