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Your Ref: SJP 5354T  
Our Ref : CI1/TP19004439/D

09 March 2019

**Road Traffic Accident On 16 March 2018 At About  
2345hrs Along Raffles Avenue, In Front Of Ritz-Carlton  
Millenia Hotel, Involving Motor Cars SJP 5354T And SLN  
9226R**

**Requested By  
JD Motorsport Pte Ltd  
25 Kaki Bukit Road 4 #06-38  
Synergy @ KB  
Singapore 417800**

## Introduction

1. I refer to your request dated 07 December 2018.
2. By way of introduction, I set out below a brief description of my professional qualifications and professional work experiences.
3. I am a Senior Technical Investigator and certified Accident Reconstructionist with LKK Auto Consultants Pte Ltd. I have been carrying out assessments, valuations, inspections and technical investigations of motor vehicles involved in, among other things, accident since 2007. I have also carried out accident reconstruction basing on the laws of dynamics and physics by applying mathematical equations with technique competencies aligned with international standards, ensuring proper cause analysis. Some of my clients include the Singapore Police Force, NTUC Income Insurance Co-Operative Limited, AIG Asia Pacific Insurance Pte Ltd, AXA Insurance Singapore Pte Ltd, Cycle & Carriage Industries Pte Ltd and Performance Motors Limited amongst others. I also have experience in providing analysis and commentaries on damages and faults of motor vehicles.
4. I have given oral evidence as an expert witness in both the State Court and High Court, for both the prosecution and the defence for criminal proceedings and also for both the plaintiff and the defendant in civil proceedings. For instance, in MC Suit 17701/2010/Q, I acted as an expert witness in proceedings which involved among other things, a claim by an owner of a Mercedes sedan against the dealer for allegedly carrying out negligent works on the Mercedes sedan; in Suit 760/2011, I was asked by the dealer to provide my expert opinion on whether a brand new BMW sedan sold to a customer was defective. I have also been jointly appointed by both a car dealer and a car owner to provide my expert opinion as to whether the transmission of a brand-new car was defective.
5. My testimony as an expert witness for accident reconstruction and speed analysis cases involving criminal proceedings for the prosecution include amongst others, MAC 2350-51/2011, an accident involving four motor cars and a motorcycle resulting in the death of the motorcyclist; DAC 039421-2011, a motor car and motorcycle accident resulting in the death of the motorcyclist; MAC 3935/12, a motor lorry and pedal bicycle accident resulting in the death of the cyclist.

6. Cases where I have been engaged by an accused person include amongst others, DAC 60889-90/10, a motorcycle and motor car accident resulting in the death of the pillion rider; DAC 049130-2013 & DAC 049131-2013, self-accident involving a SMRT bus resulting in the death of one of its passengers.
7. I have also carried out numerous line of sight simulation, in close replication of an accident scenario, to determine a driver's view and sighting capability.
8. I hold a certificate in Technical Accident Investigation and Reconstruction from the Society of Automotive Engineers Australasia and a National ITE Certificate (Intermediate) in Automotive Technology (Light Vehicle) from the Institute of Technical Education. I have also attended training and passed a practical examination on correct repair methods, safe and cost-effective assessment of damaged motor vehicles (Thatcham Escribe System).
9. I am an affiliate member of the Society of Automotive Engineers Australasia; an affiliate member of the Institute of Automotive Engineer Assessors (UK); an associate member with the Society of Operations Engineers (UK).

### **Objective**

10. On 16 March 2018 at about 2345hrs, the motor car SJP 5354T (herein referred to as "**Honda**") was travelling along Raffles Avenue when it was involved in a traffic accident with the motor car SLN 9226R (herein referred to as "**Mercedes**"). The circumstance of accident reported by the respective drivers were conflicting. I was requested to provide my opinion on which accident circumstance reported was more probable.

### **Documents Referred to & Methodology**

11. The documents provided to me for review and analysis were as follows: -
  - a) Traffic police report lodged by the driver of the Honda, where amongst other information, the circumstance of accident was described;
  - b) Singapore Accident Statement lodged by the driver of the Honda, where amongst other information, the circumstance of accident was described;

- c) Singapore Accident Statement lodged by the driver of the Mercedes, where amongst other information, the circumstance of accident was described and photographs showing the damaged Mercedes were attached;
  - d) Inspection Report of the Honda dated 09 April 2018 by Ajax Inspection Services Pte Ltd including 54 coloured photographs showing the damaged Honda;
  - e) Traffic Police letter dated 22 May 2018 indicating that investigation carried out did not produce any substantive result;
  - f) 18 coloured photographs taken at the accident location showing the final rest position of the Honda and the Mercedes.
12. A visit to the accident location on 13 February 2019, and a review and analysis of the aforesaid documents/information were carried out in preparation of this report.
13. I now set out below my detailed analysis and findings.

#### **The Reported Circumstance of Accident**

14. Basing on the police report lodged by the driver of the Honda, the Honda was travelling on the right most lane of Raffles Avenue. Driving past the exit of Ritz-Carlton Hotel or thereabouts, the Mercedes had driven out from the exit driveway, which was located on the right side of the Honda. To avoid the collision, the driver of the Honda had swerved the Honda slightly to the left however the Mercedes had still collided into the right side of the Honda. After the collision, both the Honda and the Mercedes had skidded a distance before coming to a complete stop.
15. The driver of the Mercedes had reported in his Singapore Accident Statement that the Mercedes was travelling straight along the extreme right lane of Raffles Avenue when the Honda, which was travelling on the lane to the left, had cut into the Mercedes's lane of travel, colliding into the left front portion of the Mercedes.

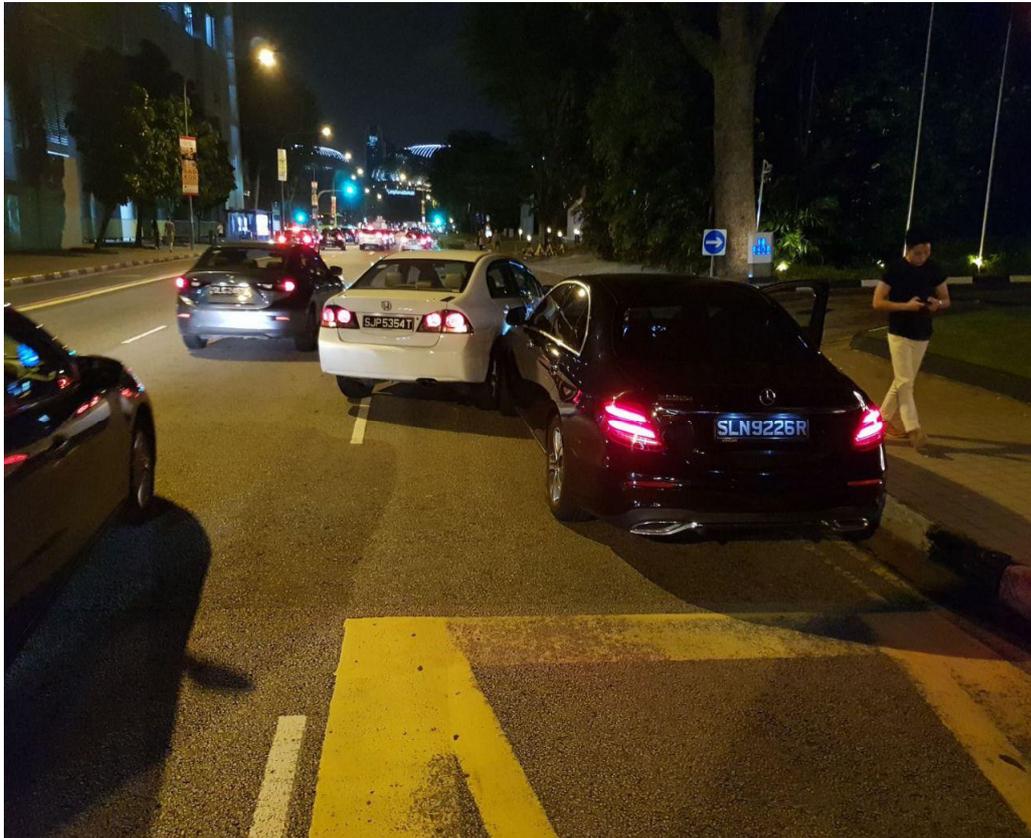
16. Given the reported circumstance of accident, the main area of conflict was whether the accident was of a head to side nature where the Mercedes had exited from the exit driveway of Ritz-Carlton Hotel; or whether the accident was of a side swipe nature, where the Honda had cut into the travelling lane of the Mercedes.

### Accident Scene Photographs

17. The final resting position of the Honda and the Mercedes as seen in the accident scene photographs would seem to suggest that the accident was of a side swipe nature, where the Honda had cut into the travelling lane of the Mercedes. However, when the physical damage of the Honda is examined closer, the actual accident circumstance may not be as what the final resting position of the Honda and the Mercedes seem to suggest. See photo 1 – 3 below showing the final resting position of the Honda and the Mercedes.



**Photo 1** shows the final resting position of the Honda and the Mercedes at the accident scene. The slanting angled position of the Honda could easily suggest that the Honda had cut into the travelling lane of the Mercedes, indicating a side swipe nature of accident. However, for this particular case, when the physical damage of the Honda is examined closer, the actual accident circumstance may not be as what the final resting position of the Honda and the Mercedes seem to suggest.



**Photo 2** shows the final resting position of the Honda and the Mercedes at the accident scene. The slanting angled position of the Honda could easily suggest that the Honda had cut into the travelling lane of the Mercedes, indicating a side swipe nature of accident. However, for this particular case, when the physical damage of the Honda is examined closer, the actual accident circumstance may not be as what the final resting position of the Honda and the Mercedes seem to suggest.

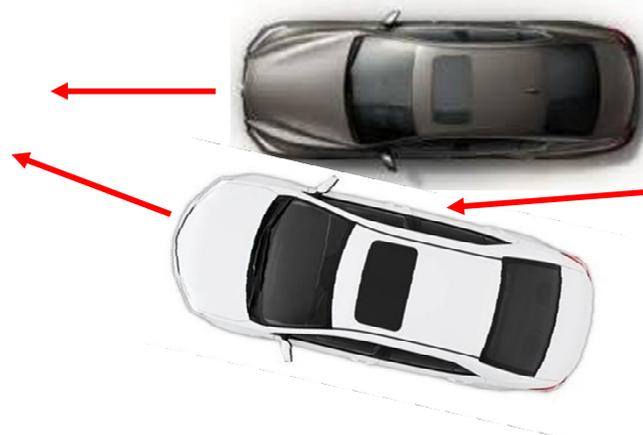
### **Damage Analysis**

18. My examination of the photographs showing the damage to the Honda that were attached in the inspection report dated 09 April 2018 by Ajax Inspection Services Pte Ltd revealed damages at the right side of the Honda's front bumper. The condition of the front bumper was indicated as deformed in the inspection report. Since the Mercedes had come to a rest in contact with the right rear door of the Honda (refer to photo 1 & 2 above), the right side of the Honda's front bumper was then the first point of contact on the Honda. See photo 3 below.



**Photo 3** shows a general view of the damage to the front bumper of the Honda as seen in the photographs attached in the inspection report of the Honda dated 09 April 2018 by Ajax Inspection Services Pte Ltd. The condition of the Honda's front bumper was indicated as deformed in the inspection report. The presence of grazed marks was also noted on the right side of the Honda's front bumper (circled). This was the first point of contact on the Honda.

19. In a side swipe scenario where the Honda had cut into the travelling lane of the Mercedes, similar pattern of grazed marks that were seen on the right side of the Honda's front bumper is expected to be found continuously stretching from the front bumper to the rear body. This follows the momentum of the Honda moving into the travelling lane of the Mercedes and the forward moving motion of the Mercedes. In other words, both the Honda and the Mercedes would be in contact till both come to a rest or both disengage (separate). Illustration shown below.

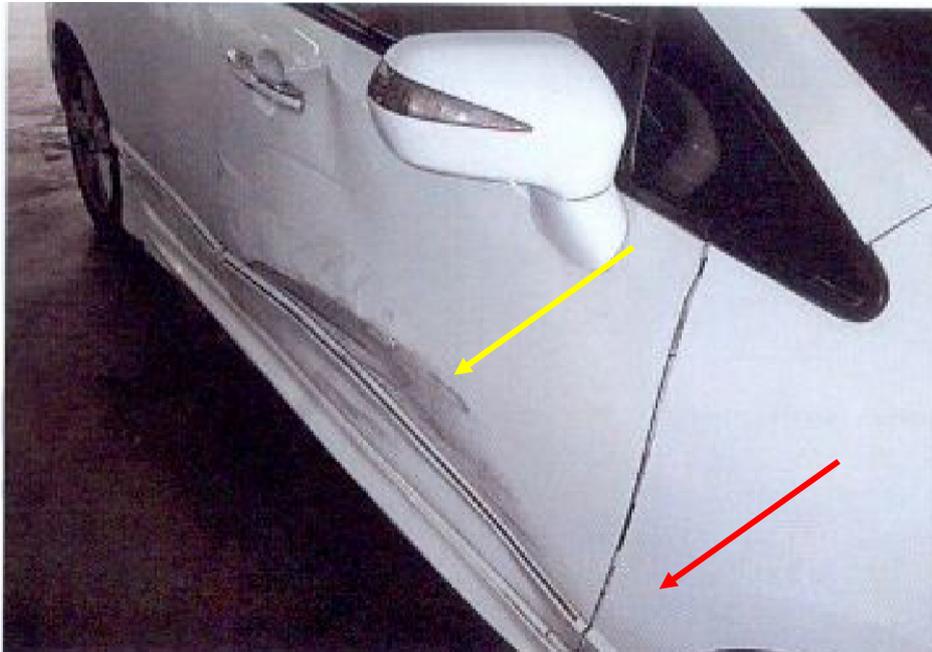


Continuous marks of grazing nature from first contact point at the front body stretching to the rear body due to the momentum of the Honda moving into the travelling lane of the Mercedes

20. Notably, I note that there was no similar pattern of grazed marks found on the front right body of the Honda. This was at the area after the front right wheel. There was in fact no sign of any damage to this body area. Thereafter the front right door and rear right door were found to be dented with the damage ending at the rear right door of the Honda. Basing on this, it can reasonably be determined that there was a break in the damage sustained by the Honda. This break in the damage was due to a relatively brief disengagement between the Honda and the Mercedes where both were not in contact with each other. See photo 4 & 5 below.



**Photo 4** shows a general view of the damage to the Honda as seen in the photographs attached in the inspection report of the Honda dated 09 April 2018 by Ajax Inspection Services Pte Ltd. From the available photographs of the Honda, I note that the front right body did not sustain similar pattern of grazed marks that were found on the front bumper. In particular, at the area (arrowed) after the front right wheel rim. The lack of damage at this body area suggest that there was a relatively brief disengagement between the Honda and the Mercedes where both were not in contact with each other.



**Photo 5** shows a general view of the damage to the Honda as seen in the photographs attached in the inspection report of the Honda dated 09 April 2018 by Ajax Inspection Services Pte Ltd. From the available photographs of the Honda, I note that the front right body did not sustain similar pattern of grazed marks that were found on the front bumper. In particular, at the area (red arrow) after the front right wheel rim. The damage to the Honda continued thereafter on the front right door (yellow arrow) before ending at the rear right door. The lack of damage at this body area (red arrow) suggest that there was a relatively brief disengagement between the Honda and the Mercedes where both were not in contact with each other.

21. In a typical lane change accident, continuous damage stretching from the first contact point to the end point is expected for the vehicle that was travelling at a higher speed than the other involved vehicle. This is due to momentum or simply put, the follow through phase of such nature of accident. The break in the physical damage that was seen on the Honda hence does not correspond to a typical lane change accident.
22. Another notable physical damage observed that does not correspond to a side swipe nature, typical lane change accident was the damage profile of the Honda's front right door. The front right door was observed to be dented inwards, akin to a curve shape. Closer examination revealed several distinctive indentations shaped in a "C" like pattern. See 6 - 8 below.



**Photo 6** shows a general view of the damage to the Honda's front right door as seen in the photographs attached in the inspection report of the Honda dated 09 April 2018 by Ajax Inspection Services Pte Ltd. The front right door was observed to be dented inwards, akin to a curve shape (arrowed).



**Photo 7** shows a general view of the damage to the Honda's front right door as seen in the photographs attached in the inspection report of the Honda dated 09 April 2018 by Ajax Inspection Services Pte Ltd. The front right door was observed to be dented inwards, akin to a curve shape. Upon closer examination, several distinctive indentations shaped in a "C" like pattern (arrowed) was observed.



**Photo 8** shows the Honda at the accident scene. The same distinctive indentations shaped in a "C" like pattern (circled) was observed on the front right door of the Honda.

23. From the damage profile of the Honda's front right door, it can be established that the Honda was exposed to an impact with grazing nature rather than an impact that was purely of grazing nature. This follows the inward dent, akin to a curve shape that was observed on the front right door.
24. The distinctively shaped indentation was clearly caused by an object that was on of similar type of shape. For this case, the Mercedes had sustained damage that was confined to a single area, which was at its left front body. The shape of the body panel and/or part fitted at the left front body of the Mercedes that could have impacted the front right door of the Honda causing the distinctively shaped indentation, was the trailing side of the Mercedes's front left wheel rim, which corresponds to a "C" like shape. The front left wheel of the Mercedes coming into contact with the area where the distinctively shaped indentation was formed is also supported by the black grazed marks, which corresponds to tyre marks. See 9 -12 below.



**Photo 9** shows a general view of the damage to the Honda's front right door as seen in the photographs attached in the inspection report of the Honda dated 09 April 2018 by Ajax Inspection Services Pte Ltd. The inward dent (circled) observed on the front right door suggests that the front right door was exposed to an impact with grazing nature rather than an impact that was purely of grazing nature.



**Photo 10** shows the damage to the Mercedes as seen in the photographs that were attached in the Singapore Accident Statement of the Mercedes. The damage to the Mercedes was confined to its left front body.



**Photo 11** shows the damage to the Mercedes as seen in the photographs that were attached in the Singapore Accident Statement of the Mercedes. The damage to the Mercedes was confined to its left front body.



**Photo 12** shows front left wheel rim of the Mercedes as seen in the photographs that were attached in the Singapore Accident Statement of the Mercedes. The damage to the Mercedes was confined to its left front body. The only body panel and/or part fitted at the left front body of the Mercedes that could have impacted the front right door of the Honda causing the distinctively shaped indentation, was the trailing side (arrowed) of the Mercedes's front left wheel rim, which corresponds to a "C" like shape.

25. Under normal circumstance, the wheels of a motor car will sit behind the outer edges of the fenders and will not protrude out from the body of the motor car. For this case, in order for the trailing side of the Mercedes's front left wheel rim to come into direct contact with the front right door of the Honda, it would have to protrude out from the front left fender (body) of the Mercedes. For the trailing side to protrude out, the front left wheel would have to be turned towards the right. In other words, the front wheels of the Mercedes were not in a straight-ahead position at the time of contact with the front right door of the Honda.
26. Since the front wheels of the Mercedes were not in a straight-ahead position at the time when the front right door of the Honda was impacted, it could be that: -
- a) the driver of the Mercedes had pulled the steering wheel slightly towards the right upon the initial contact with the Honda as it (Honda) had cut into the travelling path of the Mercedes; or
  - b) the Mercedes had turned out from the exit driveway of Ritz-Carlton Hotel, which would require the driver to turn the steering wheel right to make an almost right angle turn to enter into the main roadway of Raffles Avenue.
27. Given the inward dent on the front right door of the Honda, it would be more reasonable for the Mercedes to be turning out from the exit driveway, impacting into the front right door rather than for the Honda to be cutting into the travelling path of the Mercedes, where damage that is of pure grazing nature would be formed instead.

### **Conclusion**

28. Having reviewed the documents/information for this case, I am of the view that the physical damage of the Honda corresponds to a head to side nature type of accident rather than an accident that was of side swipe nature. In all likelihood, the accident circumstance reported by the driver of the Honda was more probable ie the Mercedes had exited from the exit driveway of Ritz-Carlton Hotel colliding into the Honda, which was travelling along the main roadway of Raffles Avenue.

29. The physical damage and/or damage profile of the Honda which does not correspond to a typical lane change accident (side swipe nature) includes:-
- a) the lack of continuous damage from first contact point to end point of the Honda;
  - b) the inward dent with grazing nature on its front right door rather than damage that was purely of grazing nature;
  - c) the distinctively shaped indentation on its front right door, indicating that the front wheels of the Mercedes were not in a straight-ahead position.
30. I have rendered these opinions and conclusions after careful evaluation and analysis of the documents provided, based on my education, training and experience. The factual matters stated in this report are, as far as I know, true and I have made all enquiries which I consider appropriate. The opinions stated in this report are genuinely held by me and this report contains reference to all matters I consider significant

### **Ang Bryan Tani**

*Senior Technical Investigator*

*Technical Investigation & Accident Reconstructionist (SAE-A)*

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