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United Legal Alliance LLC

20 Maxwell Road #13-00
Maxwell House
Singapore 069113

**AUTOMOBILE TECHNICAL INVESTIGATION REPORT OF A ROAD TRAFFIC
ACCIDENT INVOLVING FBG 9259B, GU 1662P AND YL 8454L ON 22 JULY
2016**

1. I refer to your request dated 31 October 2019 to comment on the consistency of damage to the motorcycle FBG 9259B (herein referred to as "**Motorcycle**") and the motor van GU 1662P (herein referred to as "**Motor Van**") in relation to the respective account of the accident, in particular whether the contact between the front of the Motor Van and the rear of the Motorcycle had occurred before or after the Motorcycle had fallen. A motor lorry YL 8454L (herein referred to as "**Motor Lorry**") was also involved in the accident.
2. The following documents were provided to me for my review and consideration in the preparation of this report: -
 - a) Affidavit of the rider of the Motorcycle dated October 2018;
 - b) Affidavit of the driver of the Motor Van dated 09 October 2018;
 - c) Affidavit of the driver of the motor lorry YL 8454L dated 30 October 2018;
 - d) Pre-repair survey report of the Motorcycle dated 07 March 2017 by AJAX Inspection Services Pte Ltd;
 - e) Vehicle assessment report of the Motorcycle dated 26 November 2016 by Y B Lim Appraisal Services;
 - f) Vehicle damage inspection report of the Motor Van dated 04 May 2017 by LKK Auto Consultants Pte Ltd; and
 - g) Video footage of the accident.
3. I now set out below my detailed findings and analysis based purely on my review of the documents that were made available to me.

Nature of Accident

4. Firstly, I note the contents of the affidavits of the involved parties and their account of the accident contain therein. The respective accounts are summarized in the following paragraphs.
5. In paragraph 4 of the Motorcycle rider's affidavit, it was stated that a motor vehicle in front of the Motorcycle applied brakes and the Motorcycle rider also applied brakes and was slowing down when the Motor Van, which was travelling behind the Motorcycle suddenly collided into the rear of the Motorcycle. As a result of the collision, the Motorcycle skidded and fell.
6. Paragraph 4 to 12 of the Motor Van driver's affidavit states that the Motor Van had completed filtering into lane 2 and was travelling behind the Motorcycle. The rider of the Motorcycle turned his head around (probably to check his blind spot) and when he turned his head back to the front, he braked and somehow lost control of the Motorcycle, which fell and skidded forward. The driver of the Motor Van applied brakes and managed to stop the Motor Van close to where the Motorcycle had fallen without any physical contact with the Motorcycle. Almost immediately, the Motor Lorry, which was travelling behind the Motor Van, collided into the rear of the stationary Motor Van causing the Motor Van to surge forward and collide lightly into the fallen Motorcycle.
7. Paragraph 6 to 10 of the Motor Lorry driver's affidavit contains his account of the accident. It was stated that after filtering into the second lane, the Motor Van was travelling close behind the Motorcycle. Suddenly, the driver of the Motor Van applied brakes and the Motor Van came to a stop. At the same time, the Motorcycle was seen falling towards the right onto the road. The driver of the Motor Lorry applied brakes but was not able to stop the Motor Lorry. There was contact between the front of the Motor Lorry and the Motor Van.

Video Recording

8. The video recording that was provided to me in preparation of this report was taken from a recording device that was mounted onto the front windscreen of the Motor Lorry. The recording was provided to me in a single recording and had showed the events just before the accident and the accident itself. The length (duration) of the video recording was 32secs. The images seen from this video recording were all captured directly from the recording device that was mounted onto the front windscreen of the Motor Van.

9. From the video recording, the Motor Van could be seen filtering into lane 2, forming up behind the Motorcycle and in front of the Motor Lorry. At last sight, the Motorcycle was travelling at or around the centre of lane 2 in front of the Motor Van before it became blocked from view. The Motor Van was thereafter seen travelling straight within lane 2 for a short distance before its brake lights lighted up at the 22sec mark of the video recording. The brake lights remained lighted up and in the 24sec mark of the video recording, the Motorcycle and/or its rider was seen falling at the front right of the Motor Van. The Motor Van appears to have been stationary from the 25sec mark till the Motor Lorry collided into its rear portion at the 27sec mark. The Motor Van was pushed forward due to the impact and stopped at the 29sec mark before the video recording ended at the 32sec mark.
10. Notably, at the time when the Motorcycle and/or its rider was seen falling, it would seem to appear that there was a distance between the front of the Motor Van and the Motorcycle. However, this alone is not sufficient to conclusively determine whether there was contact or there was no contact between the front of the Motor Van and the rear of the Motorcycle before it fell. This is because, the Motorcycle could have moved forward a little upon contact before falling; and by which time, there was a distance between the front of the Motor Van and the Motorcycle. See photo 1 to 7 below which are screenshots taken from the video recording.



Photo 1 shows the Motor Van (red arrow) filtering into lane 2 prior to the accident. The Motorcycle (yellow arrow) was travelling at or around the centre of lane 2, in front of the Motor Van



Photo 2 shows the Motor Van almost completed filtering into lane 2. At last sight, the Motorcycle (arrowed) was travelling at or around the centre of lane 2 in front of the Motor Van before it became blocked from view.



Photo 3 shows the Motor Van's brake lights lighted up (higher illuminance intensity) at the 22 sec mark of the video recording. This was after the Motor Van was seen travelling straight within lane 2 for a short distance.



Photo 4 shows the 24sec mark of the video recording. The brake lights of the Motor Van remained lighted up from the 22sec mark onwards and at the 24sec mark of the video recording, the Motorcycle and/or its rider (arrowed) was seen falling at the front right of the Motor Van. At the time when the Motorcycle and/or its rider was seen falling, it would appear to me that there was a distance between the front of the Motor Van and the Motorcycle.



Photo 5 shows the 25sec mark of the video recording. From my observations, the Motor Van appears to have been stationary from the 25sec mark till the Motor Lorry collided into its rear portion at the 27sec mark. It also appears to me that there was a distance between the front of the Motor Van and the Motorcycle (arrowed).

51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108



Photo 6 shows the 26sec mark of the video recording. This was just prior to the Motor Lorry colliding into the rear of the stationary Motor Van.



Photo 7 shows the distance between the front of the Motor Lorry and the rear of the Motor Van widened at the 29sec mark of the video recording as compared to the 26sec mark of the video recording, which is shown in photograph 6 above. This would indicate that the Motor Van was pushed forward upon being collided into by the Motor Lorry from the rear.

Physical Damage

11. For this case, although the video recording provided could not conclusively determine whether the contact between the front of the Motor Van and the rear of the Motorcycle had occurred before or after the Motorcycle had fallen, the physical damage sustained to the Motorcycle and the physical damage sustained to the front of the Motor Van had however indicated that the contact between the front of the Motor Van and the Motorcycle had occurred after the Motorcycle had fallen. The following paragraphs discusses this.
12. The Motorcycle was physically inspected by Ajax Inspection Services Pte Ltd on 26 July 2016 and by Y B Lim Appraisal Services on 28 July 2016. Both subsequently produced reports pertaining to the damage and cost of repair to the Motorcycle. It was noted that Ajax Inspection Services Pte Ltd had indicated in their report that the Motorcycle had sustained damage on the right portion. Y B Lim Appraisal Services had indicated in their report that the Motorcycle had sustained damage at the frontal and right side of the Motorcycle. Notably, both reports did not indicate any damage at the rear portion of the Motorcycle, which is to be expected if the Motorcycle was collided into at its rear portion by the Motor Van.
13. Although there were several rear portion parts like the rear signal and the rear side fairing amongst others, listed in the reports, these parts were at the right side of the Motorcycle. Parts directly at the rear of the Motorcycle, like the rear number plate, rear reflector and rear taillamp were not listed as parts damaged and/or affected. These are parts that would typically be damaged if the Motorcycle had sustained an impact at its rear portion.
14. My review of the photographs attached in the reports did not produce any observations of damage to the rear of the Motorcycle. My observations correspond to the observations of Ajax Inspection Services Pte Ltd and Y B Lim Appraisal Services at the time of their physical inspection of the Motorcycle, where there was no part(s) directly at the rear of the Motorcycle found damaged/affected as a result of this accident.
15. I did however note that when the Motorcycle was in an upright position as seen from the photographs that were attached in the reports, its rear box would be the most protruded part at the rear of the Motorcycle. Hence for this case, when the Motorcycle is in an upright position, any impact at the rear of the Motorcycle would result in contact between its rear box and the front body of the Motor Van.

16. Since this accident was a straight-line collision scenario as seen from the video recording, the direction of impact onto the Motorcycle would be from its rear to front. I would expect the rear box to sustain crack, broken or similar nature of damage, or at least be bent upwards. The rear box of the Motorcycle was observed to be damage by Ajax Inspection Services Pte Ltd and Y B Lim Appraisal Services however the description of damage to the rear box indicated in both reports was "grazed". The photographs showing the Motorcycle's rear box also did not show the rear box cracked and/or broken or bent etc. The "grazed" nature of damage to the rear box would have been caused by the Motorcycle falling onto its right side as the damage pattern to the parts at its right side was indicative of this. See photo 8 to 10 below.



Photo 8 shows the Motorcycle at the time of physical inspection prior to any repairs. From my review of the photographs attached in the reports of Ajax Inspection Services Pte Ltd and Y B Lim Appraisal Services, I did not observe any damage to the rear portion of the Motorcycle. It was also noted that Ajax Inspection Services Pte Ltd had indicated in their report that the Motorcycle had sustained damage on the right portion. Y B Lim Appraisal Services had indicated in their report that the Motorcycle had sustained damage at the frontal and right side of the Motorcycle. Both reports did not indicate any damage at the rear portion of the Motorcycle.



Photo 9 shows a closer view of the rear portion of the Motorcycle. Parts directly at the rear of the Motorcycle, like the rear number plate, rear reflector and rear taillamp were not observed to be damaged and/or affected. These are parts that would typically be damaged if the Motorcycle had sustained an impact at its rear portion. Even the road tax holder was seen to be undamaged. The lack of damage seen to the parts directly at the rear of the Motorcycle does not seem to suggest that the Motorcycle was collided into at its rear portion by the Motor Van.



Photo 10 shows a side view of the Motorcycle's rear portion. When the Motorcycle was in an upright position, its rear box would be the most protruded part at the rear of the Motorcycle. Hence for this case, when the Motorcycle was in an upright position, any impact at the rear of the Motorcycle would result in contact between its rear box and the front body of the Motor Van. Upon contact, I would expect the rear box to sustain crack, broken or similar nature of damage, or at least be bent upwards. However, this was not the case as seen from the photographs showing the Motorcycle in its damaged condition prior to any repairs. The rear box was observed to be intact.

17. The Motor Van was physically inspected by LKK Auto Consultants Pte Ltd on 25 July 2016. A report pertaining to the damage and cost of repair to the Motor Van was put up and it was noted that the Motor Van had sustained damage at its rear portion and front portion. For the purpose of this report, I had only considered the damage to the front portion of the Motor Van as any contact between the Motorcycle and the Motor Van would be at the front portion of the Motor Van.
18. Upon reviewing the photographs, it was observed that the damage to the front portion of the Motor Van was at the lower part of its front bumper, at or below the area where its front number plate was fixed on. There was no damage observed to the part(s) at the front portion of the Motor Van above the front number plate. The Motor Van had sustained a single area of damage at its front portion. See photo 11 to 13 below.



Photo 11 shows the front portion of the Motor Van at the time of physical inspection by LKK Auto Consultants Pte Ltd on 25 July 2016. Upon reviewing the photographs showing the Motor Van prior to any repairs, I had observed damage at the lower part of its front bumper (circled), at or below the area where its front number plate was fixed on. There was no damage observed to the part(s) at the entire front portion of the Motor Van above the front number plate.



Photo 12 shows the front portion of the Motor Van. From the photographs showing the Motor Van prior to any repairs, I had observed damage at the lower part of its front bumper (circled), at or below the area where its front number plate was fixed on. There was no damage observed to the part(s) at the entire front portion of the Motor Van above the front number plate.



Photo 13 shows a closer view of the damage at the lower part of the Motor Van's front bumper (circled), at or below the area where its front number plate was fixed on. The part(s) at the entire front portion of the Motor Van above this area did not sustain any damage. The Motor Van had sustained a single area of damage at its front portion.

19. The damage to the front portion of the Motor Van was at a relatively low height above ground level and at a single area, as seen from the photographs. If the contact between the front portion of the Motor Van and the rear portion of the Motorcycle had occurred at a time when the Motorcycle was in an upright position, any damage to the front portion of the Motor Van would be at or around middle height level of the Motor Van and downwards. The damage would not be confined to the lower part of its front bumper only.
20. To put things into perspective, if the contact had occurred when the Motorcycle was in an upright position, I would expect to find damage to the front portion of the Motor Van at or around the corresponding height (above ground level) of the Motorcycle's rear box as the rear box was the most protruding part at the rear of the Motorcycle. The relatively low height (above ground level) of damage observed to the front portion of the Motor Van would suggest that the contact between the Motor Van had occurred after the Motorcycle had fallen.

21. Also, the single area of damage seen to the front of the Motor Van suggest that there was one and not multiple contacts/impacts between the Motor Van and the Motorcycle. Since the video recording had showed that the Motor Van was pushed forward upon the collision onto its rear by the Motor Lorry, the single contact or impact between the Motor Van and the Motorcycle had occurred when the Motor Van was pushed forward. If there was contact/impact before the Motor Van was pushed forward, the damage at the front of the Motor Van would not be confined to a single area.

Conclusion

22. Having technically analyzed the documents provided to me, I am of the opinion that there was contact between the front portion of the Motor Van and the Motorcycle. This contact had occurred after the Motor Van was pushed forward upon collision onto its rear by the Motor Lorry.
23. For this case, the video recording provided could not conclusively determine whether the contact between the front of the Motor Van and the Motorcycle had occurred before or after the Motorcycle had fallen, however the relatively low height (above ground level) of damage observed to the front portion of the Motor Van and the lack of damage to the part(s) directly at the rear of the Motorcycle indicates that the contact between the front of the Motor Van and the Motorcycle had occurred after the Motorcycle had fallen and not at a time when the Motorcycle was in an upright position.



Ang Bryan Tani

AFF SAE-A, AMSOE AMIRTE, MATAI, Aff.Inst.AEA

Senior Technical Investigator

Technical Investigation & Accident Reconstructionist (SAE-A)

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