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M/s AIG Asia Pacific Insurance Pte Ltd

78 Shenton Way #08-16

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Singapore 079120

(Motor Claims Department)

**AUTOMOBILE TECHNICAL INVESTIGATION REPORT OF ACCIDENT
INVOLVING SLS 7527J AND SKA 8399L ON 17 JANUARY 2018**

1. We refer to your letter dated 12 October 2018 and the instructions therein to comment on the damage consistency of the motor car SLS 7527J involved in the captioned accident, in particular to establish whether there was possibly contact between the rear of the motor car SLS 7527J and the front of motor car SKA 8399L; and if there was contact, whether the damage on the rear portion of the motor car SLS 7527J is consistent to the accident.
2. The following documents were provided to us for our review and consideration in the preparation of this report:-
 - a) Singapore Accident Statement of the driver of the motor car SLS 7527J (herein referred to as "**Toyota**"), where amongst other information, the circumstances of accident was described;
 - b) Singapore Accident Statement of the driver of the motor car SKA 8399L (herein referred to as "**Mercedes**"), where amongst other information, the circumstances of accident was described;
 - c) 18 coloured photographs of the damage to the Toyota taken during the Pre- Repair Survey by LKK Auto Consultants Pte. Ltd.;
 - d) 34 coloured photographs taken during the physical inspection of the Mercedes;
 - e) 3 post-accident photographs taken by the driver of the Mercedes.

3. In preparation of this report, we had conducted height measurements of the rear portion of the Toyota (using a similar make and model). We had also conducted height measurements of the front portion of the Mercedes; both collectively referred herein as **"Involved Motor Cars"**. An analysis of all the available documents and information gathered was subsequently carried out.
4. We now set out below our detailed findings and analysis.

Nature of Accident

From the Singapore Accident Statement of the driver of the Toyota, Mr Lim Hock Chye (herein referred to as **"Mr Lim"**) he was driving the Toyota on 17 January 2018 at 0900 hours along of the KPE with a passenger onboard. He was heading towards Sims Avenue. The traffic ahead was slow moving. Mr Lim suddenly felt an impact from the rear and realized that the Mercedes had rear-ended him.

5. The Singapore Accident Statement of the driver of the Mercedes, Ms Sheila Kwok Wai Yee (herein referred to as **"Mr Kwok"**), however had stated that on 17 January 2018 at 0900 hours, she had exited the PIE towards Sims Avenue and she was behind the Toyota. Both vehicles were waiting to merge in to the main road. The driver of the Toyota braked suddenly and Ms Kwok followed suit. She felt a jerk due to the braking but did not feel any impact with the Toyota. The driver of the Toyota got out and told Ms Kwok that she had rear-ended him. Ms Kwok insisted otherwise. There were no damages to both vehicles and Ms Kwok stated that the driver of the Toyota also admitted the same but claimed that there would be internal damage to the Toyota's rear bumper and which would need to be repaired. They did not exchange contact information and Ms Kwok did not report the accident as she did not see it as one. She was informed by an AIG surveyor on 7 February 2018 that there was an insurance claim by the driver of the Toyota.

Damage to the Toyota

6. From our examination of the photographs taken during the Pre- Repair Survey conducted by LKK Auto Consultants Pte. Ltd. about 2 weeks after the accident, we note that the Toyota had sustained an impact onto its rear portion. The damages were mainly observed to be at or around its rear bumper.

7. We had observed horizontal whitish marks on the left portion of the lower rear bumper. We also noted that the rear bumper was not misaligned at its corner edges. See photos 1 - 5 below.



Photo 1 shows the general view of the rear of the Toyota at the time of the Pre-Repair Survey conducted by LKK Auto Consultants Pte. Ltd. which was taken about 2 weeks after the accident. The damage to the Toyota was observed to be confined to its rear portion, at the rear bumper.



Photo 2 shows a closer view of the rear bumper of the Toyota at the time of the Pre- Repair Survey conducted by LKK Auto Consultants Pte. Ltd. which was taken about 2 weeks after the accident. Horizontal whitish marks were observed on the left portion of the lower rear bumper (arrowed).



Photo 3 shows a close up view of the horizontal whitish marks observed on the left portion of the Toyota's lower rear bumper (arrowed).



Photo 4 shows a close up view of the horizontal whitish marks observed on the left portion of the Toyota's lower rear bumper (arrowed).



Photo 5 shows a close up view of the right corner edge of the rear bumper of the Toyota. We observed that there was no misalignment at the corner edges (red arrows).

Physical Inspection of the Mercedes

8. The Mercedes was physically inspected on 8 March 2019 at the premises of LKK Auto Consultants Pte. Ltd. located at 51 Ubi Ave 1, Paya Ubi Industrial Park, #01/02-25, Singapore 408933.
9. The mileage recorded was 69, 698km.
10. The physical inspection carried out had primarily focused on the front portion of the Mercedes, in particular its front number plate frame as:-
 - a) the accident was reported to be of a head to rear nature where the Mercedes was behind the Toyota at the material time and;
 - b) that the only body part shape on the front portion of the Mercedes that could possibly correspond to the horizontal whitish marks found on the lower rear bumper of the Toyota was the rectangular shaped front number plate frame.
11. Our visual examination of the Mercedes's front number plate frame revealed that its top portion was slightly distorted. However the frame was not broken and/or cracked. It would then appear that the front number plate frame of the Mercedes had sustained an impact that was relatively light as there was no obvious crack or break on the front number plate frame. We observed blackish horizontal marks on some of the alpha-numeric letterings of the Mercedes's front number plate. It was also noted that the front bumper was not misaligned at its corner edges. See photos 6 - 13 below.



Photo 6 shows the general view of the front portion of the Mercedes at the time of our inspection. The only body part shape on the front of the Mercedes that could possibly correspond to the horizontal whitish marks found on the lower rear bumper of the Toyota was the top portion (arrowed) of its rectangular shaped front number plate frame.



Photo 7 shows a close up view of the top right portion of the Mercedes's front number plate frame. The frame was observed to be slightly distorted (circled). However there was no obvious crack or break on the front number plate frame.



Photo 8 shows a close up view of the top left portion of the Mercedes's front number plate frame. The frame was observed to be slightly distorted (circled). However there was no obvious crack or break on the front number plate frame.



Photo 9 shows the front number plate of the Mercedes. We observed horizontal blackish marks on some of the alpha-numeric letterings of the Mercedes front number plate (circled).



Photo 10 shows a closer view of the horizontal blackish marks on some of the alpha-numeric letterings of the Mercedes front number plate (circled).



Photo 11 shows a close up view of the horizontal blackish marks on some of the alpha-numeric letterings of the Mercedes front number plate (circled).



Photo 12 shows a close up view of the right corner edge of the front bumper of the Mercedes. We observed that there was no misalignment at the corner edges (red arrows).



Photo 13 shows a close up view of the left corner edge of the front bumper of the Mercedes. We observed that there was no misalignment at the corner edges (red arrows).

Accident Scene Photographs

12. Our review of the available accident scene photographs showing the final position of the Involved Motor Cars provided to us by Ms Kwok had showed the Mercedes behind the Toyota. The position of the Mercedes appeared to be slightly towards the left from the rear of the Toyota. No other information could be obtained from these photographs. See photo 14 below.



Photo 14 shows the final position of the Involved Motor Cars post- accident, with the Mercedes behind the Toyota. The position of the Mercedes appeared to be slightly towards the left from the rear of the Toyota. No other information could be obtained from this photograph.

Technical Analysis

13. Our analysis of the documents that were made available to us in preparation of this report, and our observations following the physical inspection of the Mercedes would appear to suggest that the front number plate frame of the Mercedes had contacted onto the rear bumper of the Toyota. Reasons for which are set out below.
14. Firstly, the horizontal whitish marks on the centre portion of the Toyota's lower rear bumper were caused by an object that is of a similar horizontal shape, pressing onto the rear portion of the Toyota. If one was to consider the shape of the Mercedes's front number plate frame, it would then appear that these horizontal whitish marks were caused by the top portion of the Mercedes's front number plate frame.
15. Although there was no obvious crack or break on the front number plate frame of the Mercedes at the time of our inspection, it could be due to the impact force arising from the contact being not significant enough to have stretched pass the material strength of the front number plate frame. In this aspect, one would have to consider the material stiffness of the number plate frame, which is constructed of hard plastic, against the thermoplastic (soft plastic) material of the rear bumper.

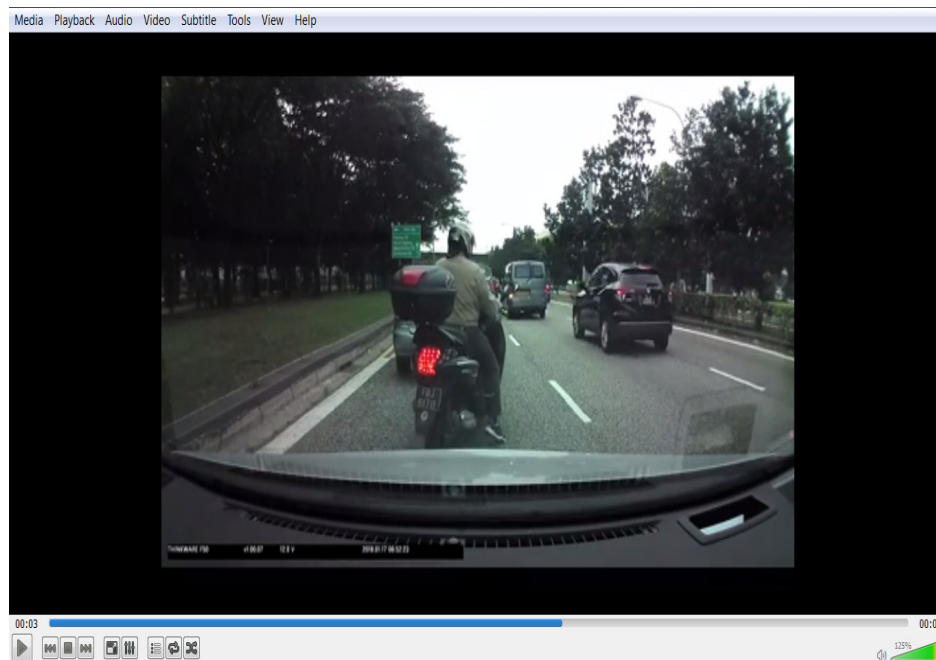
Video Recording

16. The video recording that was provided to us in preparation of this report was taken from a video recording device that was mounted onto the front windscreen of the Toyota. The recording showed the events before the accident, and the accident itself. The length (duration) indicated in the video recording was 6 seconds.
17. The Toyota can be seen inching forward and braking along the 3rd lane at the start of the video. Between the 2nd and 3rd second mark of the video recording, we had noted a slight movement (forward like movement) of the Toyota whilst braking. This was after the Mercedes had rear-ended the Toyota. The capturing of this slight movement by the video recording device that was mounted on the front windscreen of the Toyota is a sign that there was a jerk-like movement to the Toyota itself. Ultimately, indicating that there was contact between the front portion of the Mercedes and the rear portion of the Toyota.

18. See screenshots 1 and 2 below showing the 2nd and 6th second mark of the video recording. However one would have to view the recording to see this slight movement.



Screenshot 1 of the video recording from the video recording device that was mounted onto the front windscreen of the Toyota showing the Toyota inching forward and braking along the 3rd lane.



Screenshot 2 of the video recording from the video recording device that was mounted onto the front windscreen of the Toyota. Between the 2nd and 3rd second mark of the video recording, we had noted a slight movement (forward like movement) of the Toyota whilst braking. This was after the Mercedes had rear-ended the Toyota. The capturing of this slight movement by the video recording device that was mounted on the front windscreen of the Toyota is a sign that there was a jerk-like movement to the Toyota itself. Ultimately, indicating that there was contact between the front portion of the Mercedes and the rear portion of the Toyota.

Height Measurement

19. We had conducted a height configuration test to determine whether the damages observed on the rear bumper of the Toyota corresponds to the damages observed on the front portion of the Mercedes.
20. In order to determine this, we had measured the height above ground level of the rear bumper of the Toyota (using a similar make and model), at the area where the horizontal whitish marks were found. We had thereafter compared this measured height against the front portion of the Mercedes. See photos 15 & 16 below.



Photo 15 shows the height measurement being conducted on the rear portion of the Toyota (using a similar make and model). The height range above ground level of the lower rear bumper of the Toyota, at the area where the horizontal whitish marks were found was measured to be approximately between 46cm to 47cm.



Photo 16 shows the height measurement being conducted on the front portion of the Mercedes. The body part at the height range of between 46cm to 47m above ground level was the top portion of the front number plate frame.

21. We now set out below the findings that we had gathered following the height measurements that was conducted:-

- a) the height range above ground level of the lower rear bumper of the Toyota, at the area where the horizontal whitish marks were found was measured to be approximately between 46cm to 47cm;
- b) the body part at the height range of between 46cm to 47m above ground level was the top portion of the Mercedes's front number plate fame;
- c) the height measurements appear to support the findings of possible contact between the rear portion of the Toyota and the front portion of the Mercedes. The damage observed on the rear bumper of the Toyota was a result of this contact and corresponds to the damage observed on the front number plate frame of the Mercedes.

Conclusion

22. Having investigated and technically analyzing the material evidence available at the time of writing this report, we are of the opinion that there was likely to be contact between the front of the Mercedes and the rear of the Toyota at the material time of accident. The impact force from the contact was relatively minor.

23. The damage to the lower rear bumper of the Toyota was caused by the front number plate frame of the Mercedes, specifically by the top portion of the Mercedes's number plate frame. This is supported by the following material/physical evidence:-

- a) the shape of the horizontal whitish marks on the Toyota's lower rear bumper had corresponded to the shape of the top portion of the Mercedes's front number plate frame;
- b) the height above ground level of the horizontal whitish marks was within the height above ground of the top portion of the Mercedes's front number plate frame.

24. Upon contact, the front number plate frame of the Mercedes had compressed against the lower rear bumper of the Toyota, creating the permanent horizontal whitish marks on the centre portion of the lower rear bumper. As the impact force arising from the contact was not significant (slight contact), there was hence no obvious damage sustained by the front number plate frame of the Mercedes, which is constructed from hard plastic material.
25. We are further of the view that the energy forces generated from the impact was not significant enough to have dissipated and affected body parts that were beyond the rear bumper of the Toyota.

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