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Our Ref : CC6/AIG17013850/N

10 October 2018

M/s AIG Asia Pacific Insurance Pte. Ltd.

78 Shenton Way #08-16
CHARTIS Building
Singapore 079120
(Motor Claims Department)

**AUTOMOBILE TECHNICAL INVESTIGATION REPORT OF ACCIDENT
INVOLVING SLP 4194X AND SLN 8403C ON 16 JULY 2017**

1. We refer to your letter dated 11 May 2018 and the instructions therein to comment on the damage consistency of the motor car SLP 4194X involved in the captioned accident, in particular to establish whether there was possibly contact between the rear portion of the motor car SLP 4194X and the front portion of the motor car SLN 8403C; and if there was contact, whether the damages on the rear portion of the motor car SLP 4194X 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 SLP 4194X (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 SLN 8403C (herein referred to as "**Mazda**"), where amongst other information, the circumstances of accident was described together with 7 coloured photographs of the Mazda at the time of reporting;
 - c) 36 coloured photographs of the damage to the Toyota taken during the Pre- Repair Survey by LKK Auto Consultants Pte. Ltd.;
 - d) 39 coloured photographs taken during our physical inspection of the Mazda;
 - e) 2 coloured post-accident photographs taken by the driver of the Mazda.

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 a physical inspection and thereafter conducted height measurements of the front portion of the Mazda; 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

5. From the Singapore Accident Statement of the driver of the Toyota, Ms Lee Chin Ying, Jeanie (herein referred to as "**Ms Lee**") she had stopped the Toyota at the junction of Bedok Central and Bedok North Avenue 3 around 1243 hours on 16 July 2017. She was waiting to turn right into Bedok North Avenue 3. As there was oncoming traffic, she inched slightly forward when a car bearing registration number SLN 8403C rear- ended the Toyota.
6. The Singapore Accident Statement of the driver of the Mazda, Mr Tan Yong Hir (herein referred to as "**Mr Tan**"), however had stated that on 16 July 2017 at 1245 hours he was driving the Mazda along Bedok Central. At the T- junction of Bedok Central and Bedok North Avenue 3, Mr Tan stated that the driver of the Toyota which was in front of him had stopped so he followed suit. Both drivers alighted and check their respective vehicles but did not find any visible damage.
7. The driver of the Toyota informed Mr Tan that she is a Grab driver and had to report the incident to the car rental company. They exchanged particulars. Mr Tan received a call from the rental company the next day informing him that they will be claiming against Mr Tan's insurance as there was an issue closing the car boot. Mr Tan was asked if he preferred to settle the matter privately. After discussing with his father, Mr Tan decided to let his insurance handle the claim. He received a letter from the third party's insurance company on 26 July 2017.

Damage to the Toyota

8. From our examination of the photographs taken during the Pre- Repair Survey conducted by LKK Auto Consultants Pte. Ltd. about 2 days after the accident, we observed small 'V' shaped indentations as well as a vertical indentation on the top portion of the Toyota's rear bumper. There were also horizontal whitish marks found on the left reverse sensor of the Toyota. However we also noted that the rear bumper was not misaligned at its right corner edge. See photos 1 - 6 below.

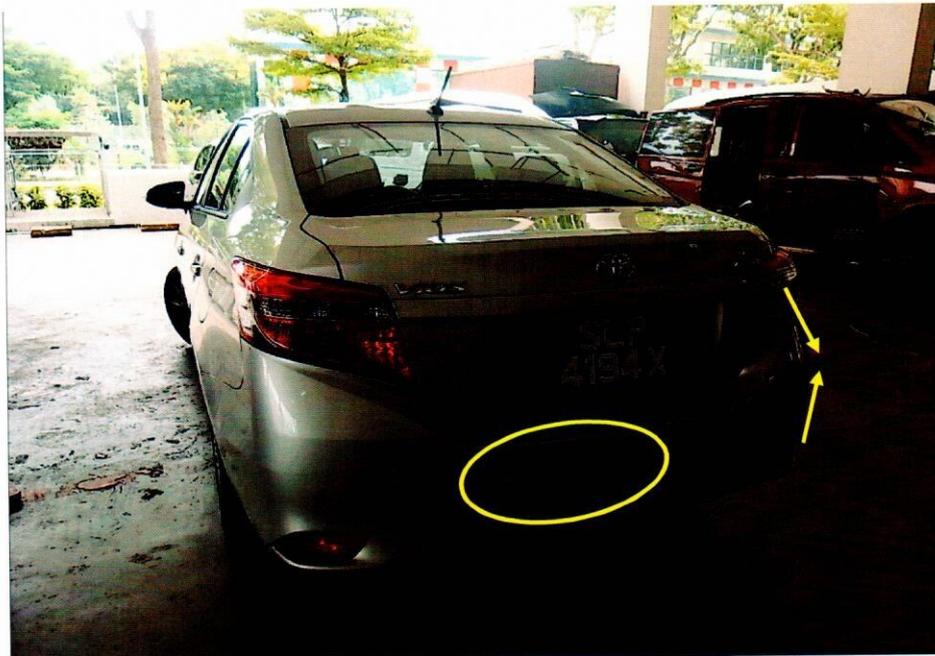


Photo 1 shows a rear view of the Toyota at the time of the Pre- Repair Survey conducted by LKK Auto Consultants Pte. Ltd. which was taken about 2 days after the accident. We observed small 'V' shaped indentations as well as a vertical indentation on the top portion of the Toyota's rear bumper. There were also horizontal whitish marks found on the left reverse sensor of the Toyota (circled). However we also noted that the rear bumper was not misaligned at its corner edges.



Photo 2 shows a closer view of the top portion of the rear bumper of the Toyota. We observed small 'V' shaped indentations as well as a vertical indentation on the top portion of the Toyota's rear bumper (circled). We also noted horizontal whitish marks found on the left reverse sensor of the Toyota (arrowed).

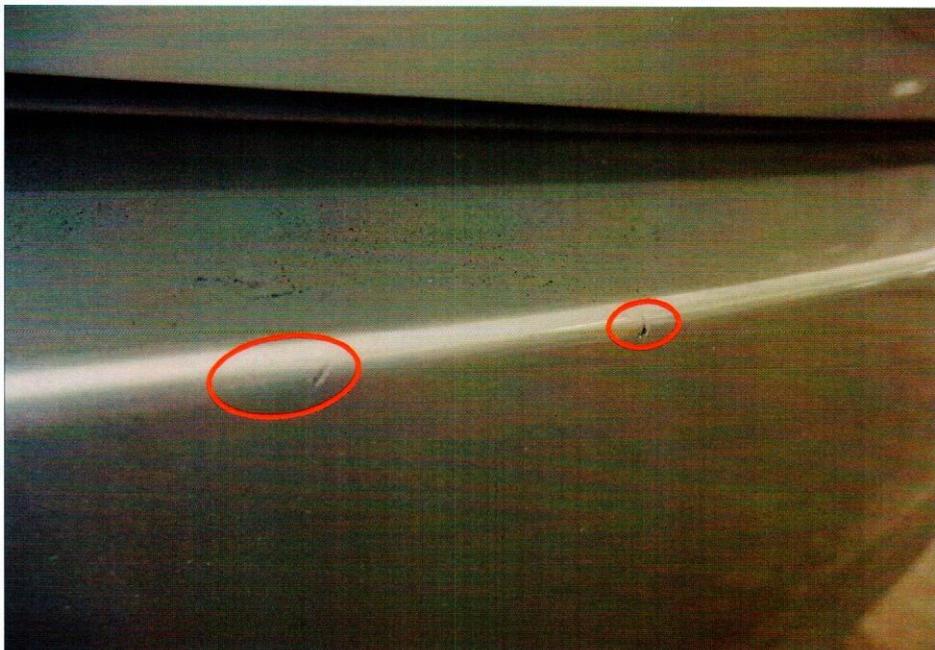


Photo 3 shows a close up view of the small 'V' shaped indentations as well as a vertical indentation on the top portion of the Toyota's rear bumper (circled).

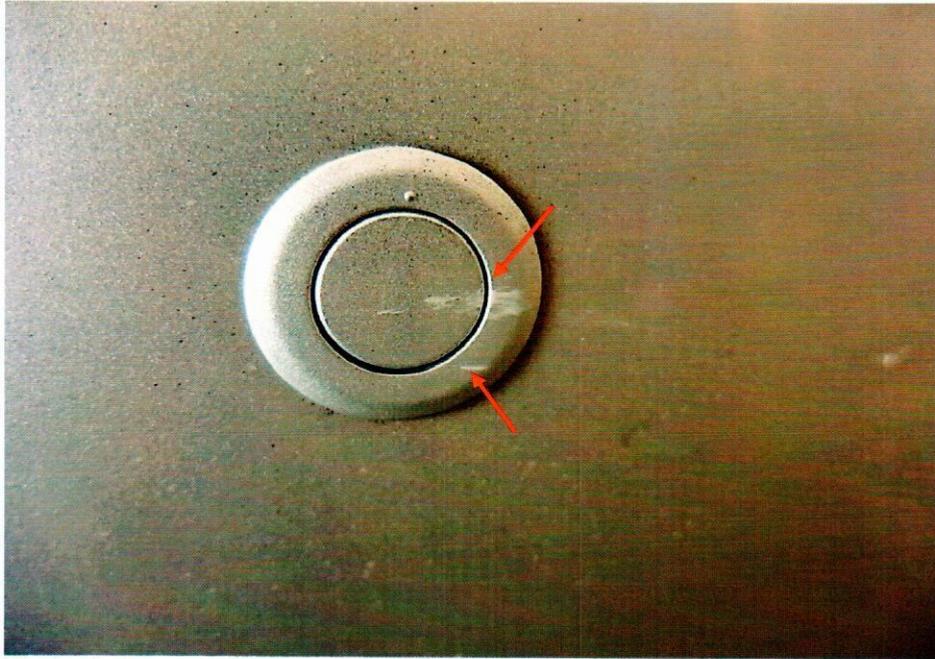


Photo 4 shows a close up view of the horizontal whitish marks found on the left reverse sensor of the Toyota (arrowed).

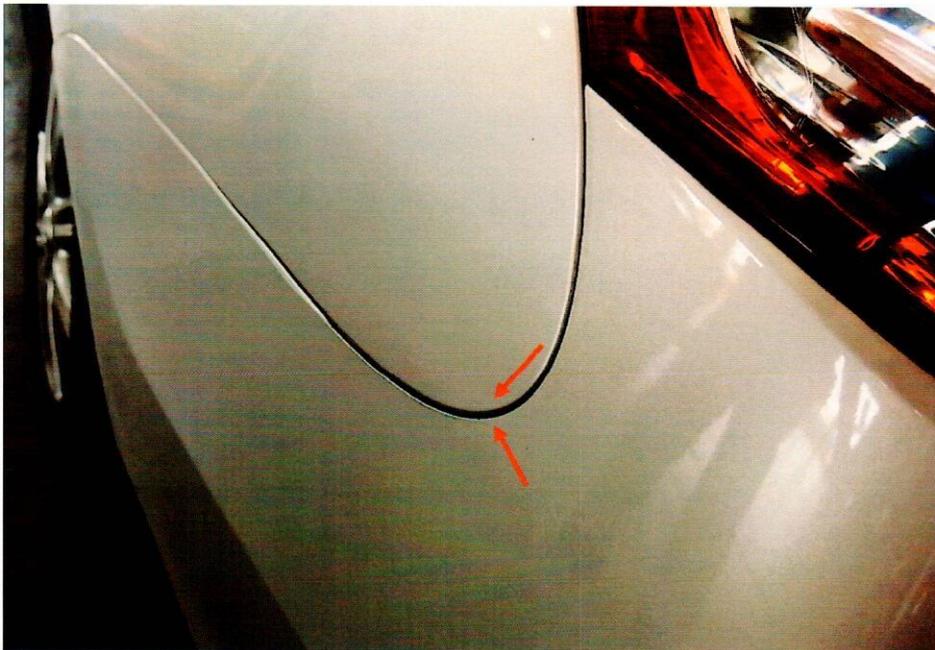


Photo 5 shows a closer view of the left corner edge of the rear bumper of the Toyota. We observed that there was no misalignment at the corner edges (arrowed).



Photo 6 shows a closer view of the right corner edge of the rear bumper of the Toyota. We observed that there was no misalignment at the corner edges (arrowed).

Physical Inspection of the Mazda

9. The Mazda was physically inspected at the home premises of Mr Tan located at 21 Toh Crescent, Singapore 507930.
10. The mileage recorded was 18,704km.
11. At the time of our inspection, we observed a circular black mark on the top centre portion of the Mazda's front bumper. We also found horizontal whitish marks on the top left portion of the Mazda's front bumper. Upon closer examination of the Mazda's front number plate, we observed horizontal blackish marks on the bottom portion of the alpha-numeric letterings of the front number plate. However we also noted that there was no obvious misalignment of the front bumper at its corner edges. See photos 7 – 14 below.



Photo 7 shows the general view of the front portion of the Mazda at the time of our physical inspection. We observed a circular black mark on the top centre portion of the Mazda's front bumper. We also found horizontal whitish marks on the top left portion of the Mazda's front bumper (arrowed). Upon closer examination of the Mazda's front number plate, we observed horizontal blackish marks on some of the bottom alpha- numeric letterings of the front number plate (circled). However we also noted that there was no obvious misalignment of the front bumper at its corner edges.



Photo 8 shows a closer view of the circular black mark on the top centre portion of the Mazda's front bumper (circled).



Photo 9 shows a close up view of the circular black mark on the top centre portion of the Mazda's front bumper (circled).



Photo 10 shows a closer view of the horizontal whitish marks on the top left portion of the Mazda's front bumper (circled).



Photo 11 shows a close up view of the horizontal whitish marks on the top left portion of the Mazda's front bumper (circled).

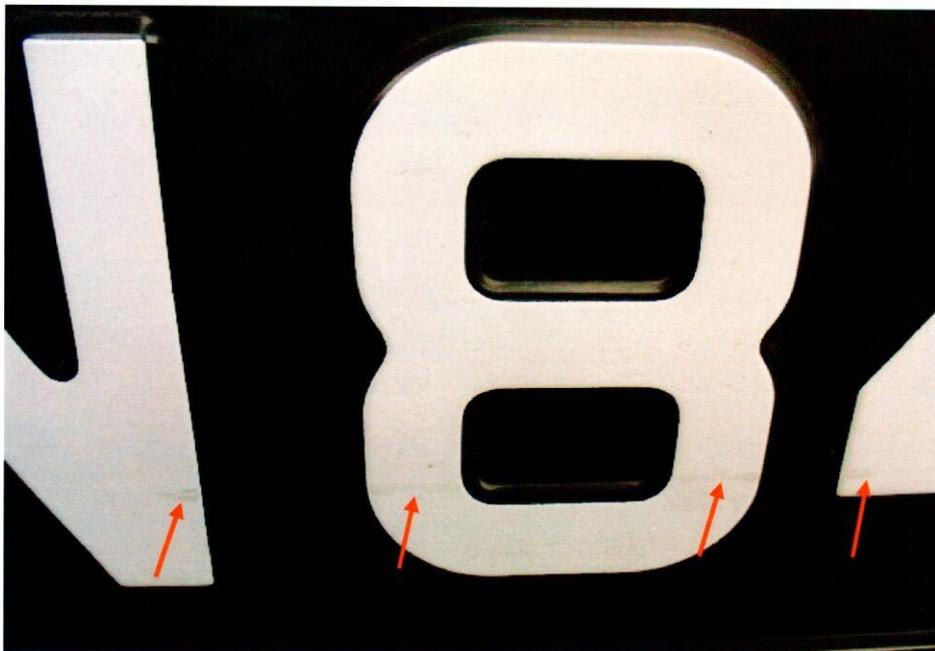


Photo 12 shows a close up view of the horizontal blackish marks on the bottom portion of the alpha-numeric letterings of the Mazda's front number plate (arrowed).



Photo 13 shows a closer view of the left corner edge of the front bumper of the Mazda. We observed that there was no misalignment at the corner edges (arrowed).



Photo 14 shows a closer view of the right corner edge of the front bumper of the Mazda. We observed that there was no misalignment at the corner edges (arrowed).

Technical Analysis

12. The reason for the small 'V' shaped indentations as well as the vertical indentation on the top portion of the Toyota's rear bumper were caused by an object pressing onto the rear portion of the Toyota. If one was to consider the shape of the Mazda's front emblem, it would then appear that the indentations were caused by the front emblem of the Mazda.

Height Measurement

13. 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 bumper of the Mazda. In order to determine this, we had measured the height above ground level of the rear portion of the Toyota (using a similar make and model), at the area where the various damages were found. We had thereafter compared this measured height against the front portion of the Mazda. See photos 15 & 16 below.

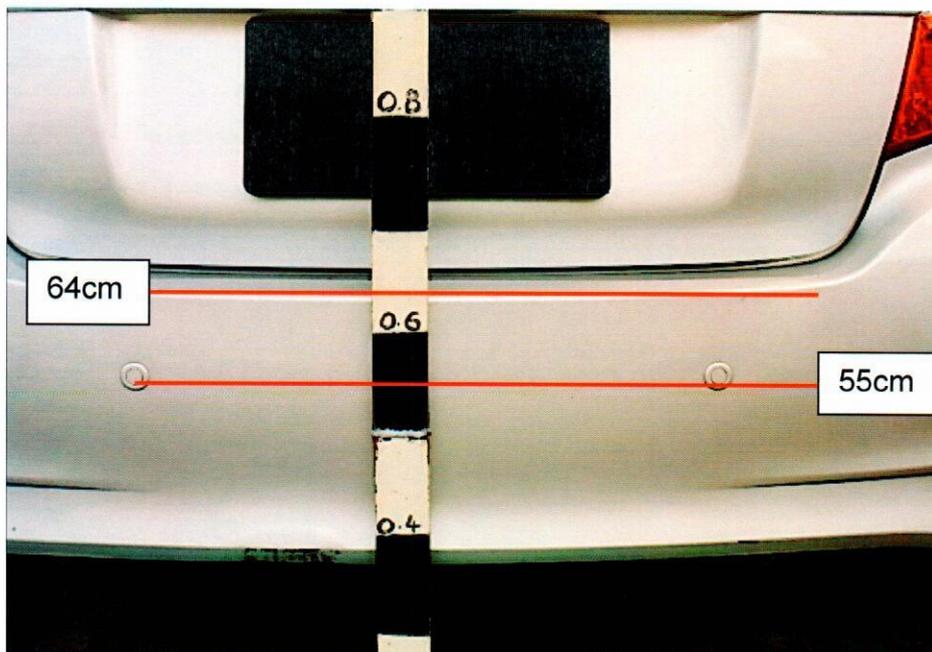


Photo 15 shows the height measurement being conducted on the rear portion of the Toyota (using a similar make and model). The height above ground level of the horizontal whitish marks found on the left reverse sensor of the Toyota was measured to be approximately 55cm. The height above ground level of the vertical indentations found on the top portion of the Toyota's rear bumper was measured to be approximately 64cm.



Photo 16 shows the height measurement being conducted on the front portion of the Mazda. The height above ground level of the horizontal blackish marks on the bottom portion of the alpha- numeric letterings of the Mazda's front number plate was measured to be approximately 42cm. The height above ground level of the circular black mark on the top centre portion of the Mazda's front bumper was measured to be approximately 60cm. The bodypart at 64cm above ground level was the Mazda's front emblem.

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

- a) the height above ground level of the horizontal whitish marks found on the left reverse sensor of the Toyota was measured to be approximately 55cm;
- b) the height above ground level of the indentations found on the top portion of the Toyota's rear bumper was measured to be approximately 64cm;
- c) the height above ground level of the horizontal blackish marks on the bottom portion of the alpha- numeric letterings of the Mazda's front number plate was measured to be approximately 42cm;

- d) the height above ground level of the circular black mark on the top centre portion of the Mazda's front bumper was measured to be approximately 60cm;
 - e) the bodypart at 64cm above ground level was the Mazda's front emblem;
 - f) the height measurements appear to support the findings of possible contact between the rear portion of the Toyota and the front portion of the Mazda. 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 bumper of the Mazda. In other words, the damage observed on the front bumper of the Mazda is consistent to the damage observed on the rear bumper of the Toyota.
15. Although there was damage observed on the Toyota, it is still possible for the Mazda's front emblem to sustain no visible damage. The lack of visible damage to the front emblem of the Mazda is due to the impact force acting onto the Mazda being not significant enough to have stretch past the yield point of the material strength of the Mazda's front emblem. In the same context, the Toyota was exposed to impact force that was significant enough to have caused visible damage to its rear portion.
16. The magnitude of the impact force acting onto the Toyota was greater than the magnitude that was acting onto the Mazda. In other words, because the Mazda was in motion, it had generated forces as compared to if it was in a stationary position (zero forces). Upon collision, the forces were dissipated to the rear portion of the Toyota, which had largely absorbed the magnitude of the forces, resulting in visible physical damage to its rear portion. However as the motion of the Mazda was relatively slow (moving off), the magnitude of the reaction forces dissipating back to the Mazda was not significant enough to cause visible damage to the front portion of the Mazda.

Conclusion

17. Having investigated and technically analyzing the material evidence available at the time of writing this report, we are of the opinion that the damages sustained to the rear portion of the Toyota were likely to be caused by the front portion of the Mazda as a result of the contact at the material time of accident.
18. The contact was of relatively low speed impact which was insufficient to create any permanent visible damage to the front of the Mazda. The damage to the rear of the Toyota was also relatively minor as can be seen from the photographs showing the rear of the Toyota.
19. The impact force from the contact was relatively minor and had occurred when the Mazda had accidentally rear-ended the Toyota. The damage to the rear bumper of the Toyota was caused by the front bumper of the Mazda. Upon contact, the front bumper (more significantly the front emblem) of the Mazda had compressed against the rear bumper of the Toyota, creating the small 'V' shaped indentations as well as the vertical indentation on the top portion of the rear bumper of the Toyota.
20. Both damages are corresponding to their respective heights and are consistent to their nature of contact.
21. 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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