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Our Ref : CS3/MSG18012821/N

14 December 2018

M/s MSIG Insurance (Singapore) Pte. Ltd.
16 Raffles Quay #24-01
Hong Leong Building
Singapore 048581
(Motor Claims Department)

**AUTOMOBILE TECHNICAL INVESTIGATION REPORT OF ACCIDENT
INVOLVING SKA 1068M AND SKM 46U ON 7 JULY 2018**

1. We refer to your letter dated 11 December 2018 and the instructions therein to comment on the damage consistency of the motor car SKA 1068M involved in the captioned accident, in particular to establish whether there was possibly contact between the rear of the motor car SKA 1068M and the front of motor car SKM 46U; and if there was contact, whether the damage on the rear portion of the motor car SKA 1068M 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 SKA 1068M (herein referred to as "**Honda**"), where amongst other information, the circumstances of accident was described together with 6 coloured photographs of the Honda at the time of reporting;
 - b) Singapore Accident Statement of the driver of the motor car SKM 46U (herein referred to as "**Mercedes**"), where amongst other information, the circumstances of accident was described together with 8 coloured photographs of the Mercedes at the time of reporting;
 - c) 42 coloured photographs of the damage to the Honda taken during the Pre- Repair Survey by LKK Auto Consultants Pte. Ltd.;
 - d) 39 coloured photographs taken during the inspection of the Mercedes;
 - e) 6 coloured 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 Honda (using a similar make and model). We had also conducted a physical inspection and thereafter 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

5. From the Singapore Accident Statement of the driver of the Honda, Mr Tan Teck Hin (herein referred to as **"Mr Tan"**) he was driving the Honda along Jurong West Avenue 2 on 7 July 2018 at 1800 hrs. The vehicle in front of him braked so he followed suit. Suddenly he felt an impact from the rear. The Mercedes had rear-ended him.
6. The Singapore Accident Statement of the driver of the Mercedes, Mr Khor Guo Xiong (herein referred to as **"Mr Khor"**) on the other hand, had stated that at the aforementioned date and time he was driving behind the Honda and kept a safe distance. Suddenly the driver of the Honda jammed his brakes and Mr Khor managed to stop behind him without feeling any impact between both vehicles. Mr Khor noticed the driver of the Honda then switched on the hazard lights and exited the vehicle. Mr Khor followed suit. The driver of the Honda told Mr Khor that he had rear-ended the Honda. Mr Khor did not even notice any dents at the rear portion of the Honda.

Damage to the Honda

7. From our examination of the photographs taken during the Pre- Repair Survey conducted by LKK Auto Consultants Pte. Ltd. about 5 months after the accident, the damage to the Honda was observed to be confined to its rear centre portion. We observed that the rear bumper scuff plate as well as the rear bumper were buckled at the centre portion. The tailgate bottom chrome moulding was buckled at the centre portion. The boot lid was also dented at the lower centre portion. However we noted that the rear bumper was not misaligned at its right corner edge. See photos 1 - 4 below.



Photo 1 shows the general view of the rear of the Honda at the time of the Pre-Repair Survey conducted by LKK Auto Consultants Pte. Ltd. taken 5 months after the accident. The damage to the Honda was observed to be confined to its rear centre portion (circled).



Photo 2 shows a close up view of the rear bumper of the Honda at the time of the Pre-Repair Survey conducted by LKK Auto Consultants Pte. Ltd. taken 5 months after the accident. We observed that the rear bumper scuff plate as well as the rear bumper were buckled at the centre portion (circled).

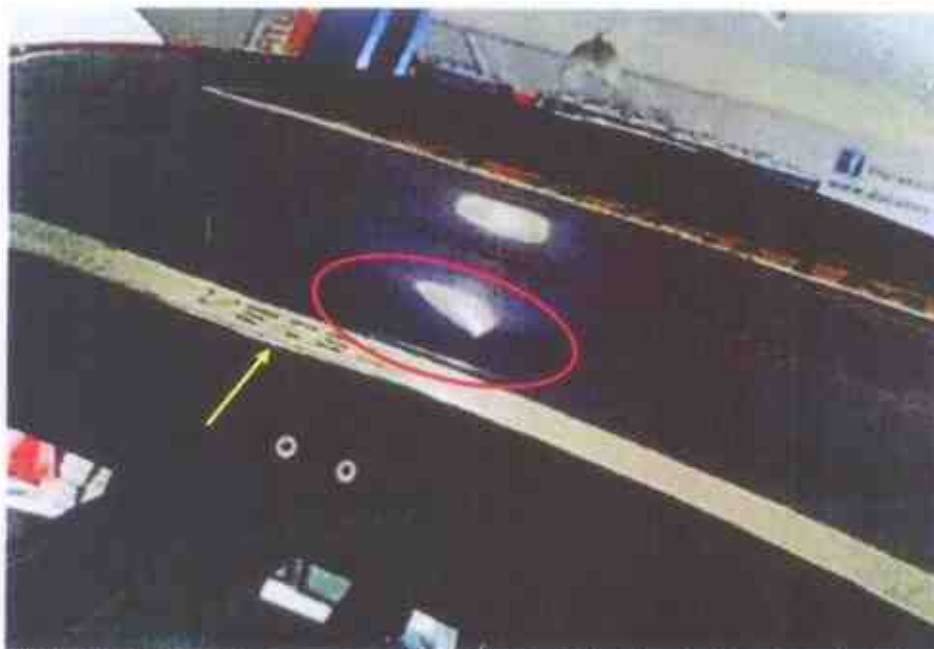


Photo 3 shows a close up view of the tailgate of the Honda. The tailgate bottom chrome moulding was buckled at the centre portion (arrowed). The boot lid was also dented at the lower centre portion (circled).



Photo 4 shows a close up view of the slight dent on the lower centre portion of the boot lid (circled).

Physical Inspection of the Mercedes

8. The Mercedes was physically inspected at the premises of Aik Koon Tyre & Battery Co Pte. Ltd. located at 125 Pioneer Rd, Singapore 639592.
9. The mileage recorded was 49, 426km.
10. At the time of our inspection, we observed a white mark on the front centre portion of the front bonnet. The front emblem was slightly dented at the centre portion. Closer examination of the front number plate frame revealed cracks on the top centre portion. There were also several black marks on the alpha-numeric letterings of the front number plate of the Mercedes. However, it was also noted that the front bumper was not misaligned at its corner edges. See photos 5 - 13 below.



Photo 5 shows the general view of the front portion of the Mercedes upon our physical inspection.



Photo 6 shows the white mark on the centre portion of the front bonnet (yellow circle). The front emblem was observed to be slightly dented at the centre portion (red circle).



Photo 7 shows a close up view of the white mark on the centre portion of the Mercedes's front bonnet (circled).



Photo 8 shows a close up view of the slight dent at the centre portion of the Mercedes's front emblem (circled).



Photo 9 shows upon closer examination of the front number plate of the Mercedes, we observed cracks on the top centre portion of the front number plate frame (red arrow). There were also several black marks on the alpha- numeric letterings of the front number plate of the Mercedes (yellow arrow).



Photo 10 shows a close up view of the cracks on the top centre portion of the Mercedes's front number plate frame (red arrows).



Photo 11 shows a close up view of the several black marks on the alpha-numeric letterings of the front number plate of the Mercedes (red arrows).



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

11. For this case, the Singapore Accident Statement of Mr Khor had contained several photographs taken at the accident scene. It shows the position of the Involved Motor Cars at the accident location and the damage to both vehicles.
12. Closer examination of the accident photographs shows the damaged rear bumper scuff plate as well as the rear bumper of the Honda. We also observed the same black marks on several alpha- numeric letterings of the front number plate of the Mercedes as per our physical inspection. See photos 14 & 15 below.



Photo 14 shows the position of the Honda after the accident. Closer examination of the accident photograph shows the damaged rear bumper scuff plate as well as the rear bumper of the Honda (circled).



Photo 15 shows the position of the Mercedes after the accident. Upon closer examination of the accident photograph, we observed the same black marks on several alpha- numeric letterings of the front number plate of the Mercedes as per our physical inspection (circled).

Height Measurement

13. We had conducted a height configuration test to determine whether the damages observed on the rear bumper and boot lid of the Honda corresponds to the damage observed on the front portion of the Mercedes.
14. In order to determine this, we had measured the height above ground level of the rear bumper and boot lid of the Honda (using a similar make and model), at the area where the damages were found. We had thereafter compared this measured height against the front portion of the Mercedes. See photo 16 & 17 below.



Photo 16 shows the height measurement being conducted on the rear portion of the Honda (using a similar make and model). The height above ground level of the top portion of the rear bumper where the damages were found was measured to be approximately 58cm. The height above ground level of the lower part of the boot lid where the dent was found was measured to be approximately 62cm.



Photo 17 shows the height measurement being conducted on the front portion of the Mercedes. The height range of the damages found on the front number plate and the front number plate frame was measured to be between 35cm and 42cm. The height above ground level of the front emblem where the dent was found was measured to be approximately 58cm. The height above ground level of the white mark on the front centre portion of the Mercedes's front bonnet was measured to be approximately 68cm.

15. 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 top portion of the Honda's rear bumper where the damages were found was measured to be approximately 58cm;
- b) the height above ground level of the lower part of the Honda's boot lid where the dent was found was measured to be approximately 62cm;
- c) the height range of the damages found on the Mercedes's front number plate and the front number plate frame was measured to be between 35cm and 42cm;
- d) the height above ground level of the Mercedes's front emblem where the dent was found was measured to be approximately 58cm;

- e) the height above ground level of the white mark on the front centre portion of the Mercedes's front bonnet was measured to be approximately 68cm;
- f) the height measurements appear to support the findings of possible contact between the rear bumper of the Honda and the front portion of the Mercedes. The damage observed on the rear bumper of the Honda was a result of this contact and corresponds to the damage observed on the front portion of the Mercedes.

16. Although there were significant damages observed on the Honda, it is still possible for the Mercedes's front emblem to sustain minimal visible damage. The lack of minimal visible damage to the front emblem of the Mercedes is due to the impact force acting onto the Mercedes being not significant enough to have stretch past the yield point of the material strength of the Mercedes's front emblem. In the same context, the Honda was exposed to impact force that was significant enough to have caused visible damages to its rear portion.

17. The magnitude of the impact force acting onto the Honda was greater than the magnitude that was acting onto the Mercedes. In other words, because the Mercedes 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 Honda, which had largely absorbed the magnitude of the forces, resulting in visible physical damages to its rear portion. However as the motion of the Mercedes was relatively slow (moving off), the magnitude of the reaction forces dissipating back to the Mercedes was not significant enough to cause significant visible damage to the front portion of the Mercedes.

Conclusion

18. 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 Honda were likely to be caused by the front portion of the Mercedes as a result of the contact at the material time of accident.

19. The contact was of relatively low speed impact which was insufficient to create significant visible damage to the front of the Mercedes. The damages to the rear of the Honda were also relatively minor as can be seen from the photographs showing the rear of the Honda.

20. The impact force from the contact was relatively minor and had occurred when the Mercedes had accidentally rear-ended the Honda. The damages to the rear bumper of the Honda were caused by the front bumper of the Mercedes. Upon contact, the front bumper (more significantly the front emblem and front grille) of the Mercedes had compressed against the rear bumper of the Honda, creating the small dents on the top portion of the rear bumper scuff plate as well as rear bumper of the Honda.
21. Both damages are corresponding to their respective heights and are consistent to their nature of contact.
22. 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 and boot lid of the Honda.

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