

Your Ref : 532371 16 February 2018

Our Ref : CI/MSG18004996/N

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 SLL 4333H AND SKL 6125R ON 6 OCTOBER 2017

- We refer to your letter dated 9 February 2018 and the instructions therein to comment on the damage consistency of the motor car SLL 4333H involved in the captioned accident, in particular to establish whether the damages on the rear portion of the motor car SLL 4333H are related to this particular accident.
- 2. The following documents were provided to us for our review and consideration in the preparation of this report:-
 - a) Singapore Police Report and Accident Statement of the driver of the motor car SLL 4333H (herein referred to as "Audi"), where amongst other information, the circumstances of accident was described together with 5 coloured photographs of the Audi at the time of reporting;
 - b) Singapore Accident Statement of the driver of the motor car SKL 6125R (herein referred to as "Toyota"), where amongst other information, the circumstances of accident was described together with 7 coloured photographs of the Toyota at the time of reporting;
 - c) 38 coloured photographs of the damage to the Audi taken during the Pre- Repair Survey by FormTeam Consultancy Pte. Ltd.;
 - d) 93 coloured photographs taken during our physical inspection of the Toyota;
 - e) 7 coloured post-accident photographs taken by the driver of the Audi;
 - f) 4 coloured post-accident photographs taken by the driver of the Toyota.



- 3. In preparation of this report, we had conducted height measurements of the rear portion of the Audi (using a similar make and model). We had also conducted a physical inspection and thereafter conducted height measurements of the front portion of the Toyota; 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 Police Report No. T/20171007/2070 and Accident Statement of the driver of the Audi, Mr Poh Xuan Wei (herein referred to as "Mr Poh") he was driving the Audi on 6 October 2017 at 2200 hours together with a passenger along Bukit Timah Road. He stopped at a cross junction. The Toyota stopped behind the Audi. Suddenly the Toyota moved forward and rear- ended the Audi. Both Mr Poh and the driver of the Toyota alighted and exchanged particulars. The Audi sustained scratches and dents to the rear bumper. When Mr Poh asked the driver of the Toyota why he moved forward, he told Mr Poh that his foot had slipped off the brake pedal. No ambulance or police attended to the accident. Mr Poh went to see a doctor on 7 October 2017 at 1100 hours and received 3 days of medical leave due to whiplash from the accident. He does not know if anybody else was injured as a result of the accident.
- 6. The Singapore Accident Statement of the driver of the Toyota, Mr Lee Keen Yoong (herein referred to as "Mr Lee"), however had stated that on 6 October 2017 at 2200 hours, the Involved Motor Cars were stationary at the cross junction along Bukit Timah Road. The Toyota accidentally rolled forward and touched the rear of the Audi.

Damage to the Audi

7. Based on the circumstances of the case contained in the Singapore Accident Statement and photographs which were taken during the accident reporting on the next day after the accident, we note that the Audi had sustained an impact onto its rear portion, particularly to its rear bumper.

8. Our review of the photographs showing the Audi at the time of reporting did not produce any significant information as the photographs were all taken from afar, without any close up photographs of the damaged body parts at the rear portion of the Audi. See photos 1 & 2 below.



Photo 1 shows a general view of the rear portion of the Audi at the time of reporting, which was taken the next day after the accident. Based on the circumstances of the case contained in the Singapore Accident Statement, we note that the Audi had sustained damages to its rear portion.



Photo 2 shows a closer view of the rear portion of the Audi at the time of reporting, which was taken the next day after the accident. Based on the circumstances of the case contained in the Singapore Accident Statement, the damage to the Audi was observed to be confined to its rear portion. However our review of the photographs showing the Audi at the time of reporting did not produce any significant information as the photographs were all taken from afar, without any close up photographs of the damaged body parts at the rear portion of the Audi.

- 9. Our subsequent examination of the photographs taken during the Pre- Repair Survey conducted by FormTeam Consultancy Pte. Ltd. about 20 days after the accident revealed paint scratch marks on the left portion of the rear bumper of the Audi, above the reverse sensor. Black paint graze marks were found on the lower left portion of the rear bumper. We had observed a small circular dent on the lower left portion of its rear bumper followed by 2 parallel indentations which had stretched horizontally towards the lower centre portion of its rear bumper.
- 10. In general, these physical damages observed on the rear bumper of the Audi indicate that it had sustained an impact directly onto its rear portion. This impact was relatively light as we did not observe any obvious misalignment at the corner edges of the rear bumper, below its tail lights. See photos 3 11 below.

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Photo 3 shows a general view of the rear bumper of the Audi at the time of the Pre-Repair Survey conducted by FormTeam Consultancy Pte. Ltd. which was taken 20 days after the accident. The damages were concentrated at the left portion of the rear bumper (circled).



Photo 4 shows the paint scratch marks on the left portion of the rear bumper of the Audi, above the reverse sensor (circled).

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Photo 5 shows a close up view of the paint scratch marks on the left portion of the rear bumper of the Audi, above the reverse sensor (circled).



Photo 6 shows the black paint graze marks found on the lower left portion of the Audi's rear bumper (circled).

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Photo 7 shows a closer view of the black paint graze marks found on the lower left portion of the Audi's rear bumper (circled).



Photo 8 shows the small circular dent on the lower left portion of Audi's rear bumper followed by 2 parallel horizontal indentations which had stretched horizontally towards the lower centre portion of its rear bumper (circled).

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Photo 9 shows a close up view of the small circular dent on the lower left portion of Audi's rear bumper followed by 2 parallel indentations which had stretched horizontally towards the lower centre portion of its rear bumper (circled).



Photo 10 shows no obvious misalignment at the right corner edges of the rear bumper of the Audi, below its tail lights (arrowed), indicating that the impact onto its rear portion was relatively light.



Photo 11 shows no obvious misalignment at the left corner edges of the rear bumper of the Audi, below its tail lights (arrowed), indicating that the impact onto its rear portion was relatively light.

Physical Inspection of the Toyota

- 11. The Toyota was physically inspected on 23 February 2018 at the premises of Triangle Auto Pte. Ltd. located at 20 Tuas Avenue 2, Singapore 639451.
- 12. The mileage recorded was 112, 119km.
- 13. At the time of our inspection, we note that there was a slight distortion on the right side of the Toyota's front number plate frame, indicating that it had sustained an impact directly onto its front number plate. Upon closer examination, we observed that the top portion of the front number plate had been pushed inwards. We noticed whitish marks on the top alpha- numeric letterings as well as a slight dent on the bottom alpha- numeric letterings of the front number plate. The front bumper was slightly misaligned at its corner edges. See photos 12 19 below.

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Photo 12 shows the general view of the front portion of the Toyota at the time of our inspection.



Photo 13 shows a slight distortion on the right side of the Toyota's front number plate frame (circled), indicating that it had sustained an impact directly onto its front number plate.

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Photo 14 shows upon closer examination, we observed that the top portion of the front number plate of the Toyota had been pushed inwards (arrowed).



Photo 15 shows a close up view of the whitish marks found on the top alphanumeric letterings of the Toyota's front number plate (circled).

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Photo 16 shows a slight dent observed on the bottom alpha- numeric letterings of the Toyota's front number plate (circled).



Photo 17 shows a closer view of the slight dent observed on the bottom alphanumeric letterings of the Toyota's front number plate (circled).

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Photo 18 shows a close up view of the right corner edge of the front bumper of the Toyota. We observed that there was a slight misalignment at the corner edges (arrowed).



Photo 19 shows a close up view of the left corner edge of the front bumper of the Toyota. We observed that there was a slight misalignment at the corner edges (arrowed).

Accident Scene Photographs

14. For this case, we were able to obtain from Mr Lee several photographs which were taken at the accident scene. It shows the final position of the Involved Motor Cars at the accident location. The front centre portion of the Toyota was observed to be directly in contact with the rear left portion of the Audi. It would appear that the most significant damage to the Toyota that could possibly have been a result of contact with the rear portion of the Audi was the front number plate of the Toyota. This is also taking into consideration that the rear bumper is the most protruded body part at the rear portion of the Audi where in the event of any contact, it will be the first body part that will come into contact with the front number plate of the Toyota. See photos 20 - 23 below.



Photo 20 shows a right side view of the final position of the Involved Motor Cars at the accident location. The front centre portion of the Toyota was observed to be directly in contact with the rear left portion of the Audi (circled). It can be observed that there was no contact between the rear right portion of the Audi and the front right portion of the Toyota (arrowed).



Photo 21 shows a frontal view of the final position of the Involved Motor Cars at the accident location. The front centre portion of the Toyota was observed to be directly in contact with the rear left portion of the Audi (circled). It would appear that the most significant damage to the Toyota that could possibly have been a result of contact with the rear portion of the Audi was the front number plate of the Toyota.



Photo 22 shows a closer examination of this photograph taken at the accident scene showing the rear bumper of the Audi revealed what appears to be paint scratch marks on the left portion of the rear bumper of the Audi (circled).

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Photo 23 shows the damage to the front portion of the Toyota at the accident scene, particularly to its front number plate. The damages observed on the front number plate of the Toyota at the time of our inspection had corresponded to its damages (circled) as seen in the accident scene photographs.



Technical Analysis

- 15. 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 Toyota would appear to suggest that the front number plate frame of the Toyota had contacted onto the rear bumper of the Audi. Reasons for which are set out below.
- 16. Firstly, the small circular dent on the lower left portion of the Audi's rear bumper followed by 2 parallel indentations which had stretched horizontally towards the lower centre portion of its rear bumper was caused by an object that is of a similar shape, pressing onto the rear portion of the Audi. If one was to consider the slight dent that was observed on some of the lower alpha-numeric letterings of the Toyota's front number plate, it would then appear that this small circular dent was caused by the lower alpha-numeric letterings of the Toyota's front number plate.
- 17. Although there was no obvious crack or break on the front number plate frame of the Toyota 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 Toyota's front number plate frame, which is constructed of hard plastic, against the thermoplastic (soft plastic) material of the Audi's rear bumper.
- 18. As seen from the accident scene photographs, there was no contact between the rear right portion of the Audi and the front right portion of the Toyota. The Toyota was positioned slightly towards the left from the rear of the Audi. Hence the front number plate of the Toyota had contacted onto the left portion of the Audi's rear bumper.

Height Measurement

19. We had conducted a height configuration test to determine whether the damages observed on the rear bumper of the Audi corresponds to the damages observed on the front portion of the Toyota.

20. In order to determine this, we had measured the height above ground level of the rear bumper of the Audi (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 Toyota. See photos 24 & 25 below.



Photo 24 shows the height measurement being conducted on the rear portion of the Audi (using a similar make and model). The height above ground level of the lower left portion of the rear bumper of the Audi, where the black paint graze marks were found was measured to be approximately 41cm. The height above ground level of the lower left portion of the Audi's rear bumper where the small circular dent was found was measured to be approximately 44cm. The height above ground level of the upper left portion of the rear bumper of the Audi above the reverse sensor, where the paint scratch marks were found was measured to be approximately 59cm.



Photo 25 shows the height measurement being conducted on the front portion of the Toyota. The body part at 41cm above ground was the lower alpha- numeric letterings of the front number plate where the slight dent was found. The body part at 44cm above ground was the centre portion of the front number plate which was pushed inwards. The body part at 59cm above ground was the top portion of the front bumper of the Toyota which corresponded to the height of the paint scratch marks found on the upper left portion of the Audi's rear bumper.

- 21. 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 lower left portion of the rear bumper of the Audi, where the black paint graze marks were found was measured to be approximately 41cm;
 - the height above ground level of the lower left portion of the Audi's rear bumper where the small circular dent was found was measured to be approximately 44cm;
 - the height above ground level of the upper left portion of the rear bumper of the Audi above the reverse sensor, where the paint scratch marks were found was measured to be approximately 59cm;

- d) the body part at 41cm above ground was the lower alpha- numeric letterings of the front number plate of the Toyota where the slight dent was found;
- e) the body part at 44cm above ground was the centre portion of the front number plate of the Toyota which had been pushed inwards;
- f) the body part at 59cm above ground was the top portion of the front bumper of the Toyota which had corresponded to the height of the paint scratch marks found on the upper left portion of the Audi's rear bumper;
- g) the height measurements appear to support the findings of possible contact between the rear bumper of the Audi and the front portion of the Toyota. The damage observed on the rear bumper of the Audi was a result of this contact and corresponds to the damage observed on the front portion of the Toyota.

Conclusion

- 22. 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 Audi were likely to be caused by the front portion of the Toyota as a result of the contact at the material time of accident.
- 23. The impact force from the contact was relatively minor and had occurred when the Toyota had accidentally rolled forward and rear-ended the Audi. The damage to the rear bumper of the Audi was caused by the front bumper as well as front number plate of the Toyota. Upon contact, the front bumper and front number plate of the Toyota had compressed against the rear bumper of the Audi, creating the paint scratch marks, black paint graze marks and more significantly the small circular dent on the lower left portion of the Audi's rear bumper.
- 24. Both damages are corresponding to their respective heights and are consistent to their nature of contact.



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 Audi.

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