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27 November 2017

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 SLK 3182M AND SLF 7636X ON 16 NOVEMBER 2017**

1. We refer to your letter dated 22 November 2017 and the instructions therein to comment on the damage consistency of the motor car SLK 3182M involved in the captioned accident, in particular to establish whether there was possibly contact between the rear of the motor car SLK 3182M and the front of motor car SLF 7636X; and if there was contact, whether the damage on the rear portion of the motor car SLK 3182M 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 Police Report and Accident Statement of the driver of the motor car SLK 3182M (herein referred to as "**Mazda**"), where amongst other information, the circumstances of accident was described together with 9 coloured photographs of the Mazda at the time of reporting;
 - b) Singapore Accident Statement of the driver of the motor car SLF 7636X (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) 58 coloured photographs taken during the physical inspection of the Mazda;
 - d) 64 coloured photographs taken during the physical inspection of the Toyota.

3. In preparation of this report, we had conducted height measurements of the rear portion of the Mazda. We had also 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 of the driver of the Mazda, Mr Marutaiya s/o Marasamy (herein referred to as **"Mr Maru"**) he had stopped the Mazda on 16 November 2017 at 1300 hours at a red light at the roundabout of Newton Road. He was nearest to the Scotts Road exit. He suddenly felt a great impact from the rear. He noticed the taxi driver beside him and other drivers around him signaling that the driver of the Toyota had collided onto the rear of the Mazda and reversed immediately after. Mr Maru alighted from the Mazda to check for damages. Mr Maru approached the driver of the Toyota. He wound down the driver door window and denied colliding into the Mazda. Mr Maru asked for his particulars but he refused. He wound up the driver door window and fled the accident scene towards the Bukit Timah Road exit. Mr Maru observed that the Toyota had a 'Private Hire' decal on the rear windscreen. Mr Maru proceeded to Khoo Teck Phuat Hospital as he felt pain in his neck after the accident had occurred. He was given 5 days of medical leave. The Mazda sustained damages to the rear bumper.
6. The Singapore Accident Statement of the driver of the Toyota, Mr Tay Hong Wei (herein referred to as **"Mr Tay"**), however had stated that on 16 November 2017 at 1300 hours at the accident location, he had stopped the Toyota approximately 1 car length behind the Mazda. Following that, he saw the driver of the Mazda alighting from the vehicle and inspecting the rear bumper. He then walked up to Mr Tay and confronted him. Mr Tay wound down the driver door window and spoke to the driver of the Mazda. He accused Mr Tay of coming into contact with the rear bumper of the Mazda which did not happen. As the driver of the Mazda sounded intimidating and unreasonable, Mr Tay told him to make a police report and subsequently drove off.

7. At about 1525 hours, Mr Tay went to the Bukit Merah West Police Centre to lodge a report. However since there were no damages to the Toyota and he had not been assaulted by the driver of the Mazda, the police said he had no case and a formal police report could not be made. Nevertheless, the case was recorded under the station diary bearing serial number SD42.

Damage to the Mazda

8. From the photographs contained in the Singapore Accident Statement of the Mazda, which was taken 4 days after the accident, we note that the Mazda had sustained an impact onto its rear portion. The damages were mainly observed to be at or around its rear bumper.
9. Upon reviewing the photographs showing the Mazda at the time of reporting, we had observed paint chip marks on the top centre portion of the rear bumper.
10. At the time of our physical inspection, we had observed a left-facing curved black mark on the lower centre portion of its rear bumper followed by faint broken black marks which had stretched horizontally downwards towards the lower left portion of its rear bumper. Below the black marks there was a right-facing crescent-shaped slight indentation. The right-facing crescent-shaped slight indentation was noted to be slightly towards the left from the lower centre portion of the Mazda's rear bumper.
11. In general, these physical damages observed on the rear bumper of the Mazda 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, adjacent to its rear fenders. See photos 1 - 9 below.



Photo 1 shows the general view of the rear of the Mazda at the time of reporting, which was 4 days after the accident. The damage to the Mazda was observed to be confined to its rear portion, at the rear bumper.



Photo 2 shows a closer view of the rear portion of the Mazda at the time of reporting, which was 4 days after the accident. Paint chip marks were found on the top centre portion of the rear bumper (circled).



Photo 3 shows a general view of the rear portion of the Mazda at the time of our physical inspection.



Photo 4 shows upon closer examination, we observed a left-facing curved black mark on the lower centre portion of its rear bumper (circled) followed by faint broken black marks which had stretched horizontally downwards towards the lower left portion of its rear bumper (red arrows). Below the black marks there was a right-facing crescent- shaped slight indentation (yellow arrow). The right-facing crescent- shaped slight indentation was noted to be slightly towards the left from the lower centre portion of the Mazda's rear bumper.



Photo 5 shows a closer view of the left-facing curved black mark on the lower centre portion of the Mazda's rear bumper (circled) followed by faint broken black marks which had stretched horizontally downwards towards the lower left portion of its rear bumper (red arrows). Below the black marks there was a right-facing crescent-shaped slight indentation (yellow arrow). The right-facing crescent-shaped slight indentation was noted to be slightly towards the left from the lower centre portion of the Mazda's rear bumper.

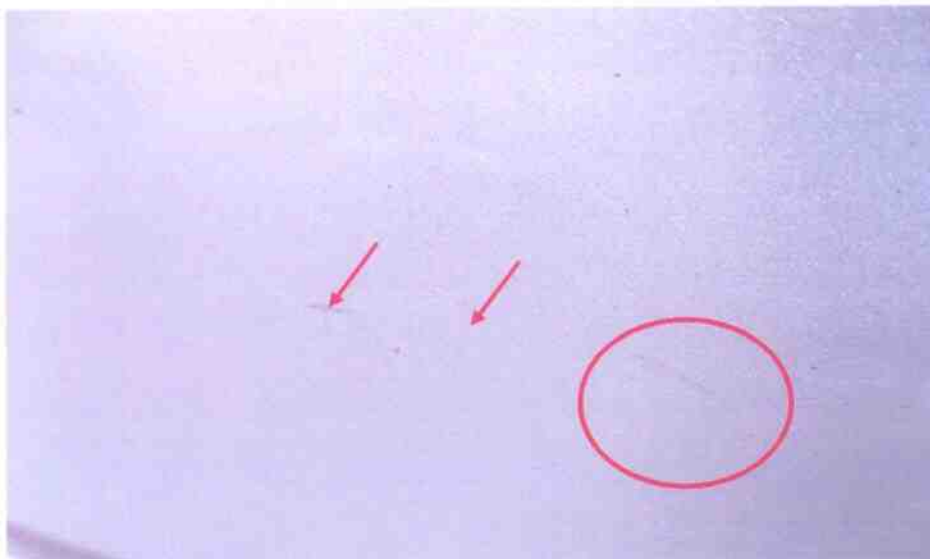


Photo 6 shows a close up view of the left-facing curved black mark on the lower centre portion of its rear bumper (circled) followed by faint broken black marks which had stretched horizontally downwards towards the lower left portion of its rear bumper (red arrows).



Photo 7 shows a close up view of the faint broken black marks which had stretched horizontally downwards towards the lower left portion of the Mazda's rear bumper (red arrows). Below the black marks there was a right-facing crescent- shaped slight indentation (circled). The right-facing crescent- shaped slight indentation was noted to be slightly towards the left from the lower centre portion of the Mazda's rear bumper.



Photo 8 shows a close up view of the right corner edge of the rear bumper of the Mazda. We observed that there was no misalignment at the corner edges (red arrows).



Photo 9 shows a close up view of the left corner edge of the rear bumper of the Mazda. We observed that there was no misalignment at the corner edges (red arrows).

Physical Inspection of the Toyota

12. The Toyota was physically inspected on 27 November 2017 at the premises of LKK Auto Consultants Pte. Ltd. located at 51 Ubi Avenue 1, Paya Ubi Industrial Park, #01/02-25, Singapore 408933.
13. The mileage recorded was 131,233km.
14. The physical inspection carried out had primarily focused on the front portion of the Toyota, in particular its front number plate frame as:-
 - a) the accident was reported to be of a head to rear nature where the Toyota was behind the Mazda at the material time and;
 - b) that the only body part shape on the front portion of the Toyota that could possibly correspond to the damages found on the lower portion of the rear bumper of the Mazda was the top portion as well as top corners of its rectangular- shaped front number plate frame.

15. Our review of the photographs showing the Toyota at the time of reporting (about 6 days after the reported accident) did not produce any significant information as the photographs were all taken from afar, without any close up photographs of the body parts at the front of the Toyota.
16. Our visual examination of the sides of the Toyota's front number plate frame revealed that both its left side and right side were slightly distorted and bent with the top left corner of the frame appearing to be pressed inwards when compared to the right top corner. The front number plate frame was also observed to be at a slight downward angle. However the frame was not broken and/or cracked. It would then appear that the front number plate frame of the Toyota had sustained an impact that was relatively light as there was no obvious crack or break on the front number plate frame. It was also noted that the front bumper was not misaligned at its corner edges. See photos 10 - 14 below.



Photo 10 shows the general view of the front portion of the Toyota at the time of our physical inspection. The only body part shape on the front of the Toyota that could possibly correspond to the damages found on the lower portion of the rear bumper of the Mazda was the top portion as well as top corners of its rectangular- shaped front number plate frame. (red arrows).



Photo 11 shows a top view of the Toyota's front number plate. The frame was observed to be distorted and bent with the top left corner of the frame appearing to be pressed inwards (yellow arrow) as compared to the right top corner (red arrow). However there was no obvious crack or break on the front number plate frame.



Photo 12 shows a closer view of the front number plate of the Toyota. The front number plate frame was also observed to be at a slight downward angle (circled).



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



Photo 14 shows a close up view of the left corner edge of the front bumper of the Toyota. We observed that there was no misalignment at the corner edges (red arrows).

Technical Analysis

17. Our analysis of the documents that were made available to us in preparation of this report, and our observations following the physical inspections of the Involved Motor Cars would appear to suggest that the front number plate frame of the Toyota had contacted onto the rear bumper of the Mazda. Reasons for which are set out below.
18. Firstly, the damages on the lower centre portion of the Mazda's rear bumper which had stretched onto the lower left portion of its rear bumper was caused by an object that is of a similar shape, pressing onto the rear portion of the Mazda. If one was to consider the shape of the top portion and corners of the Toyota's front number plate frame, it would then appear that these damages were caused by the top portion and corners of the Toyota's front number plate frame.
19. Secondly, 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 number plate frame, which is constructed of hard plastic, against the thermoplastic (soft plastic) material of the rear bumper.
20. Thirdly, the left-facing curved black mark found on the lower center portion of the Mazda's rear bumper seems to correspond to the top right corner of the front number plate frame of the Toyota. Additionally, the right-facing crescent-shaped slight indentation found on the lower left portion of the Mazda's rear bumper seems to correspond to the top left corner of the front number plate frame of the Toyota which appeared to be pressed inwards when compared to the top right corner of the front number plate frame of the Toyota. Furthermore, the faint broken black marks found on the lower centre portion of the Mazda's rear bumper which had stretched horizontally downwards towards the lower left portion of its rear bumper also seem to correspond to the top portion of the front number plate frame of the Toyota which was also observed to be at a slight downward angle.

Height Measurement

21. We had conducted a height configuration test to determine whether the damages observed on the lower portion of the rear bumper of the Mazda corresponds to the damages observed on the front number plate of the Toyota.

22. In order to determine this, we had measured the height above ground level of the lower portion of the rear bumper of the Mazda, at the area where the damages were found. We had thereafter compared this measured height against the front number plate of the Toyota. See photos 15 & 16 below.



Photo 15 shows the height measurement being conducted on the rear portion of the Mazda. The height above ground level of the top end and lower end of the damages that were found on the lower portion of the rear bumper of the Mazda were measured to be approximately between 50cm and 52cm above ground level respectively.



Photo 16 shows the height measurement being conducted on the front portion of the Toyota. The top portion of the Toyota's front number plate frame is within the 50cm to 52cm range.

23. 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 end and lower end of the damages that were found on the lower portion of the rear bumper of the Mazda were measured to be approximately between 50cm and 52cm;
- b) the top portion of the Toyota's front number plate frame is within the 50cm to 52cm range;
- c) the height measurements appear to support the findings of possible contact between the rear bumper of the Mazda and the front portion of the Toyota. The damages observed on the lower portion of the rear bumper of the Mazda was a result of this contact and corresponds to the damage observed on the front number plate frame of the Toyota.

Conclusion

24. 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 Toyota and the rear of the Mazda at the material time of accident. The impact force from the contact was relatively minor.
25. The damage to the lower portion of the rear bumper of the Mazda was caused by the front number plate of the Toyota, specifically by the top portion and corners of the Toyota's number plate frame. This is supported by the following material/physical evidence:-
- a) the shape of the damages on the lower portion of the Mazda's rear bumper had corresponded to the shape of the top portion and corners of the Toyota's front number plate frame;
 - b) the height above ground level of the damages on the lower portion of the Mazda's rear bumper was within the height above ground of the top portion and corners of the Toyota's rectangular- shaped front number plate frame.
26. Upon contact, the front number plate frame of the Toyota had compressed against the rear bumper of the Mazda, creating the permanent right- facing crescent- shaped slight indentation, horizontal faint black marks and the left-facing curved black mark on the lower portion of its 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 Toyota, which is constructed from hard plastic material.
27. The contact was of relatively low speed impact which was insufficient to create any permanent visible damage to the front of the Toyota. The damage to the rear of the Mazda was also relatively minor.

28. 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 Mazda.



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