



Your Ref: 1801164929SG
Our Ref : CI/AIG18001638/N

18 January 2018

M/s AIG Asia Pacific Insurance Pte. Ltd.
78 Shenton Way #08-16
CHARTIS Building
Singapore 079120
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF ENGINE DAMAGE TO THE
INSURED VEHICLE SLB 9121Y**

1. We refer to your request dated 16 January 2018 to conduct an investigation and analysis to determine the cause of damage to the engine of the insured vehicle SLB 9121Y (herein referred to as "**Insured Vehicle**").
2. The following documents/data were provided to us in preparation of this report:-
 - a) Singapore Accident Statement of the driver of the Insured Vehicle, where amongst other information, the circumstance of incident was described;
 - b) 107 coloured photographs showing the damage to the Insured Vehicle;
 - c) Work Order 200 206 607 from Eng Bee Recovery Pte Ltd, reflecting the details of the towing work carried out to the Insured Vehicle.

Reported Incident

3. On 1 January 2018 at about 1700hrs, the driver of the Insured Vehicle, Mr Goh Zhong Quan Shawn (herein referred to as "**Mr Goh**") had turned right into Tampines Street 91 from Tampines Avenue 4 when a loud impact was heard coming from under the Insured Vehicle. He did not stop the Insured Vehicle immediately as it was a congested dual carriageway and it was raining heavily with poor visibility. Furthermore, his place of residence was approximately 200 metres from the incident location. Hence Mr Goh continued to turn right into the open carpark and immediately parked the Insured Vehicle at Block 930 which is 5 blocks away from his home. Mr Goh only returned to the Insured Vehicle the following morning. He did not notice any engine oil under the Insured Vehicle as it had rained the entire night.

4. When he turned the ignition, the "see owner's manual" message appeared on the screen console of the Insured Vehicle. Upon starting the Insured Vehicle, a loud rumbling noise could be heard. Mr Goh immediately turned off the engine and towing arrangements were made.
5. In preparation of this report, we had conducted a physical inspection of the Insured Vehicle.

Inspection of the Insured Vehicle

6. We inspected the Insured Vehicle on 18 January 2018 at the premises of M/s Cycle & Carriage (herein referred to as "C & C") located at 188 Pandan Loop, Singapore 128378. We now set out below our observations and comments with respect to our inspection.

7. The following general vehicle information was first recorded at the time of our inspection: -

Registration Number:	: SLB 9121Y
Make & Model	: MERCEDES BENZ A200 FL STYLE (R17 HLG)
Year of Registration	: April 2016
Chassis Number	: WDD1760432J450276
Speedo Reading	: 40,259km

8. The Insured Vehicle was observed to be in good general condition with no visible damage to the exterior body. We did however observe that the fitment of the front bumper and front bonnet was slightly misaligned.
9. Upon examination of the front underside of the Insured Vehicle, we had found graze marks starting from the underside of the front bumper onto the underside of the engine cover, stretching towards the rear of the Insured Vehicle.
10. Upon further examination, we had found a crack and a significantly sized puncture/hole on the underside of the engine oil sump. Engine oil was observed to have leaked from this damaged area. The undercarriage parts and components that were immediately after the punctured engine oil sump were further observed to be covered with engine oil stains.

11. There was also insufficient engine oil when we had checked the engine oil dipstick of the Insured Vehicle. When compared with an engine oil dipstick from a similar make and model, we observed that the engine oil dipstick of the Insured Vehicle was slightly discoloured. As a result of insufficient engine oil, the engine of the Insured Vehicle could not be started. See photos 1 – 9 below.



Photo 1 shows the general view of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to be in good general condition with no visible damage to the exterior body. We did however observe that the fitment of the front bumper and front bonnet was slightly misaligned (red arrows).



Photo 2 shows the engine oil dipstick of the Insured Vehicle, which had indicated insufficient engine oil. This was due to leakage of engine oil from a puncture/hole that was on the underside of the engine oil sump.



Photo 3 shows when compared with an engine oil dipstick from a similar make and model (red arrow), we observed that the engine oil dipstick of the Insured Vehicle was slightly discoloured (yellow arrow).



Photo 4 shows the graze marks (red arrow) that were found originating from the underside of the front bumper, onto the underside of the engine cover, stretching towards the rear (yellow arrow) of the Insured Vehicle.



Photo 5 shows a closer view of the graze marks that were found originating from the underside of the front bumper (red arrow), onto the underside of the engine cover (yellow arrow), stretching towards the rear (circled) of the Insured Vehicle.



Photo 6 shows a closer view of the graze marks that had stretched towards the rear (red arrows) of the Insured Vehicle.



Photo 7 shows the torn front engine undercover (yellow arrow) and broken engine oil sump (red arrow) of the Insured Vehicle.

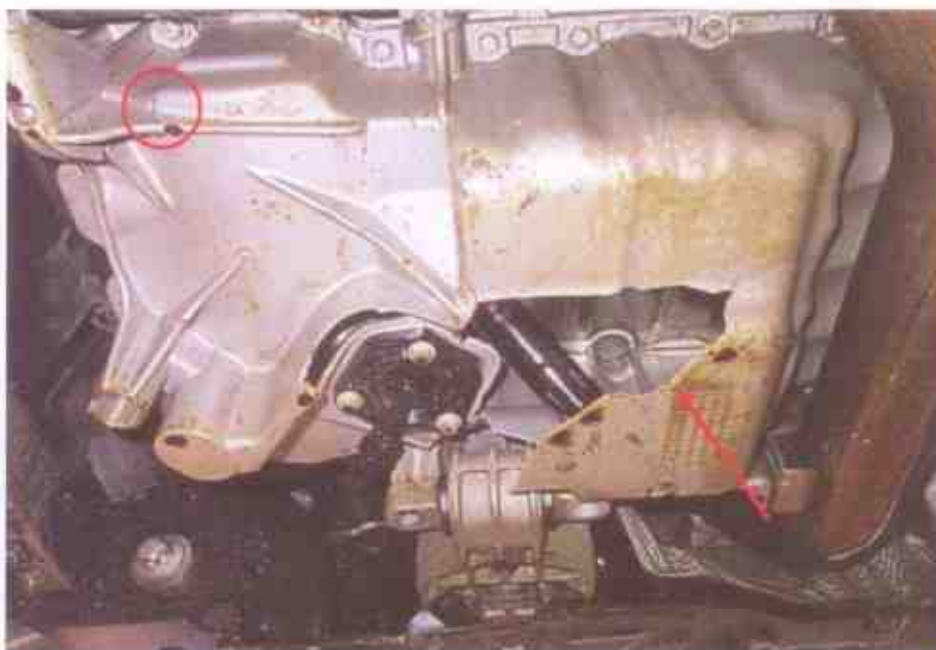


Photo 8 shows a closer view of the crack (circled) and the puncture/hole (red arrow) on the underside of the engine oil sump of the Insured Vehicle. The damage profile of the engine oil sump corresponds to the Insured Vehicle going over an object.



Photo 9 shows the undercarriage parts and components (arrowed) that were immediately after the punctured engine oil sump, covered with engine oil stains.

Comments & Opinions

12. For this case, the damage profile of the Insured Vehicle's underside corresponds to the Insured Vehicle going over an object(s), leading to the engine oil sump puncturing. However in such going over object(s) type of incidents, the engine of the vehicle will not be affected by the vehicle going over the object(s), provided that there was no further operation of the engine and/or continued driving after it had gone over the object(s), and also provided that there was no engine oil leakage.
13. For this case, the Insured Vehicle was continued to be driven to a carpark at Tampines Street 91, where it was only towed to C & C the following day after the loud rumbling noise was heard from the engine after the Insured Vehicle was started up. The excessive engine oil leakage was only discovered on the underside of the engine oil sump as well as on the ground only after the front portion of the Insured Vehicle was jacked up by the towing personnel. See photo 10 below.



Photo 10 shows the excessive engine oil leakage was only discovered on the underside of the engine oil sump (circled) as well as on the ground (arrowed) only after the front portion of the Insured Vehicle was jacked up by the towing personnel.

14. From the document relating to the towing work that was carried out by Eng Bee Recovery Pte Ltd, it was recorded that the Insured Vehicle was towed from the carpark of Block 930 Tampines Street 91. Basing on Google Map, the approximate distance from the reported location where the Insured Vehicle had gone over an object to Block 930 Tampines Street 91 where it was towed was approximately 180m. See screenshot extracted from Google Map below.



Screenshot extracted from Google Map shows the shortest distance where the right turn was made from Tampines Avenue 4 (red arrow) to the carpark of Block 930 Tampines Street 91, (black arrow) which was approximately 180m (yellow arrow). Co-relating this distance with this particular case, the Insured Vehicle had travelled a distance of at least 180m, after it had gone over the object, before it was parked and eventually towed to C & C after the loud rumbling noise was heard from the engine when the Insured Vehicle was started up the following day.

15. Given that there was engine oil leakage from the puncture/hole at the underside of the engine oil sump of the Insured Vehicle as a result of the Insured Vehicle going over an object, the amount of engine oil in the engine would have thus decreased when the Insured Vehicle was being driven to the carpark of Block 930 Tampines Street 91. This would have then led to insufficient engine oil for lubrication and heat removal purposes, ultimately affecting the mechanical parts inside the engine. Hence, resulting in the loud rumbling noise emitting from its engine after the Insured Vehicle was started up the following day.

16. The damage to the engine of the Insured Vehicle could have thus been avoided if it was not driven for this 180m. Such damage can therefore be considered to be a consequential damage and not a direct damage as a result of the Insured Vehicle going over an object.
17. During our interview with Mr Goh, we were also informed that at the first instance after going over the object, he did not notice any warning message displayed on the console screen. Furthermore, he did not feel any abnormality to the performance of the Insured Vehicle, which was also the reason why he did not stop the Insured Vehicle after going over the object.
18. Although the Insured Vehicle was brought to a stop within a short distance after going over the object, its engine may have already been affected from the continued driving with insufficient engine oil. Our checks with C & C revealed that such warning message would not be stored in the Engine Control Module (ECM) of the Insured Vehicle as the cause of the warning message appearing was not due to an electronic nature. Hence any electronic scan performed on the various control modules of the Insured Vehicle would be unable to retrieve details like, the time or mileage of when this warning message had first appeared.

Conclusion

19. Having carried out a review and analysis of the material evidence, we are of the opinion that the damage to the engine of the Insured Vehicle was due to operating of the engine with insufficient engine oil for lubrication and heat removal purposes. Due to the insufficient engine oil, the oil film (protection layer) between the mechanical parts was inadequate, resulting in direct contact between moving/rotating mechanical parts inside the engine.
20. The insufficient engine oil was due to leakage of engine oil from the crack and puncturing of the engine oil sump that was caused by the Insured Vehicle going over the object. The continued driving of the Insured Vehicle had led to the engine operating with insufficient engine oil, ultimately affecting the mechanical parts inside the engine.

21. Our investigations revealed that the Insured Vehicle was driven for approximately 180m after going over the object before it was eventually brought to a stop by Mr Goh at the carpark near his home. The hole on the underside of the engine oil sump was relatively large which would have resulted in engine oil flowing out rather than seeping/dripping out. Hence there was engine damage even though the Insured Vehicle had only travelled for 180m, which we note is a relatively short distance.
22. The damage to the engine of the Insured Vehicle could have been avoided if the Insured Vehicle was laid up immediately after it had gone over the object instead of being continued to be driven. The damage to the engine can thus be considered to be a consequential damage and not a direct damage from the Insured Vehicle going over the object.


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