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Our Ref :CS/AGI18019736/D

16 November 2018

Auto & General Insurance (Singapore) Pte Limited

190 Clemenceau Avenue #03-01
Singapore Shopping Centre
Singapore 239924
(Motor Claims Department)

**DAMAGE CONSISTENCY REPORT OF INSURED VEHICLE SKS 6234Y
INVOLVED IN A FLOOD INCIDENT ON 28 OCTOBER 2018**

1. I refer to your request dated 30 October 2018 to comment on whether the damage to the insured vehicle SKS 6234Y (herein referred to as "**Insured Vehicle**") was caused by driving through a flood or caused whilst parked during a flood incident.
2. Following the request, I had physically inspected the Insured Vehicle on 30 October 2018 at the premises of M/s Progressive Car Care Pte Ltd, Block 3022A Ubi Road 1 #01-45/46, Singapore 408716. I had also reviewed the statement of the owner/driver, Mr Mohan Chaitanya, recorded by M/s A-PAC Investigation Solutions Pte Ltd; and the Scene Investigation Report dated 01 November 2018 also by M/s A-PAC Investigation Solutions Pte Ltd.

Physical Inspection of the Insured Vehicle

3. The Insured Vehicle was observed to be of good general condition at the time of my inspection. Its right front fog lamp garnish was observed to be dislodged. Its front bumper, at the area directly below the right front fog lamp, was also observed to be deformed/dented.
4. Upon checking for sign(s) or indication(s) of involvement in a flood incident, the top cover of the Insured Vehicle's air filter housing was removed. At which point, I found the air filter to be damp. The spark plugs were also subsequently removed and were similarly found to be damp. The physical condition of the air filter and spark plugs seen on the Insured Vehicle can be relied on to establish that the Insured Vehicle was indeed involved in a flood incident.
5. Other observations gathered from my inspection of the Insured Vehicle that corresponds to its involvement in a flood incident include a damp interior upholstery; and dried leaves trapped on its air condenser. See photo 1 – 8 below.



Photo 1 shows a general view of the front left body of the Insured Vehicle. Generally, the Insured Vehicle was found to be in good condition at the time of my inspection.



Photo 2 shows a general view of the front right body of the Insured Vehicle. Its right front fog lamp garnish was observed to be dislodged. Its front bumper, at the area directly below the right front fog lamp, was also observed to be deformed/dented (circled).



Photo 3 shows a closer view of the dislodged right front fog lamp garnish and deformed/dented (circled) front bumper, at the area directly below the right front fog lamp.



Photo 4 shows a general view of the Insured Vehicle's engine compartment. The air filter (arrowed) was checked for sign(s) or indication(s) of involvement in a flood incident.



Photo 5 shows a closer view of the air filter of the Insured Vehicle. The air filter was found to be damp, which was one of the signs observed at the time of my inspection that indicate the Insured Vehicle was indeed involved in a flood incident.



Photo 6 shows a close view of the Insured Vehicle's spark plugs. The spark plugs were seen covered with water, indicating that the Insured Vehicle was involved in a flood incident.



Photo 7 shows the dried leaves that were all trapped on the fins of the air condenser of the Insured Vehicle. The condition of the air condenser corresponds to the Insured Vehicle being involved in a flood incident.



Photo 8 shows the upholstery at the driver's side of the Insured Vehicle. The upholstery was damp at the time of my inspection. This was another observation gathered from my inspection of the Insured Vehicle that corresponds to its involvement in a flood incident.

Recorded Statement of Owner/Driver

6. Mr Mohan Chaitanya, the owner/driver of the Insured Vehicle had provided a detailed statement to M/s A-PAC Investigation Solutions Pte Ltd on 30 October 2018 pertaining to the incident.
7. Relevant information gathered from the recorded statement was that the Insured Vehicle had stalled at a time when it was being driven along a roadway with raised level of water. The raised water was estimated to be about 10cm above the road level and had covered the entire width of the roadway. The engine of the Insured Vehicle was thereafter unable to be started.

Incident Location

8. The Scene Investigation Report dated 01 November 2018 by M/s A-PAC Investigation Solutions Pte Ltd had contained a photograph that was taken at the incident location after the rain had stopped. From this photograph, it can be seen that the entire width of the roadway was covered with raised level of water (flooded). The water had covered about 30m of the stretch of road. See photo 9 below.



Photo 9 shows the photograph of the incident location that was contained in the Scene Investigation Report dated 01 November 2018 by M/s A-PAC Investigation Solutions Pte Ltd

9. It was also observed from the photograph that the top surface of a road hump was still visible and not covered with water. This was subsequently used by M/s A-PAC Investigation Solutions Pte Ltd to measure the height of the raised level of water, which is a reasonable method of measurement ie by using a fixed object/road feature as reference. From the measurement, it was established that the raised water was approximately 9cm above road surface.

Comments & Opinions

10. Having gathered the information available for this particular case, my comments and opinions pertaining to the damage consistency of the Insured Vehicle are set out below in the following paragraphs.
11. Firstly, there were several physical evidences found on the Insured Vehicle that indicate that it was involved in a flood incident. The dried leaves trapped on the air condenser, the damp air filter, the damp spark plugs, and the damp interior upholstery are all common signs left behind on a vehicle that had been involved in a flood incident.
12. The damp air filter and damp spark plugs further indicate that water had entered the engine of the Insured Vehicle. From the recorded statement of the owner/driver, the Insured Vehicle had stalled as it was being driven through the flood. The reason for the stall was likely due to the spark plug, which was no longer able to create a spark (ignition) for the combustion process because it was wet.
13. Water was able to reach the spark plugs through the air intake system of the Insured Vehicle, evident from the damp air filter. During engine operation, air is "sucked" into the engine, travelling through the air filter, to form a mixture with the fuel for combustion. At the material time of incident, water and air was sucked into the engine, wetting the air filter as it passes through into the intake manifold of the engine.
14. Although the water level was only about 9cm above the road surface, this at most can be taken as a guide. In reality, the water is not stagnant or still. It will be disturbed/splashed when vehicle(s) passed through. Hence the water may reach levels that are higher than 9cm above ground level. It was noted that there were 2 air intake openings for air to enter the intake manifold of the Insured Vehicle. One of which was at the lower part of the front bumper while the other was at the front bonnet height. See photo 10 & 11 below.



Photo 10 shows the air intake opening (arrowed) of the Insured Vehicle that is located at the front bonnet height. Air for engine combustion enters the intake manifold (circled) from this opening, which is one of 2 openings for such purpose.



Photo 11 shows the approximate location where the other air intake opening of the Insured Vehicle is located. This was at the lower part of the front bumper (approximately arrowed), behind the radiator fan. Air for engine combustion enters the intake manifold from this opening, which is one of 2 openings for such purpose. Water had likely entered the engine of the Insured Vehicle from this opening given its relatively low height above ground level.

15. Considering that dried leaves were found trapped on the lower part of the air condenser (at the lower part of the front grille height), it is likely that water had entered the engine of the Insured Vehicle from the opening that is located at the lower part of the front bumper, since the height of this opening was approximately around the same height. Refer to photograph 7 above.

Conclusion

16. Having physically inspected the Insured Vehicle and considered the relevant information gathered by M/s A-PAC Investigation Solutions Pte Ltd during the course of their investigations, I am of the opinion that the damage to the Insured Vehicle is consistent to the description of the events provided by the owner/driver of the Insured Vehicle, Mr Mr Mohan Chaitanya. In other words, the damage had occurred at a time when the Insured Vehicle was being driven through a flood.
17. The physical evidence found on the Insured Vehicle at the time of my inspection on 30 October 2018 indicates that water had entered the engine. For such type of damage, the mechanical components inside the engine like the connecting rod, crank shaft, piston etc are recommended to be replaced in order to prevent these components from sudden failure (breaking) during engine operation.
18. The integrity of these components may have been compromised when the engine of the Insured Vehicle was in operation at the material time given that water is a non-compressible property. These components may eventually break due to material fatigue.

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