

Your Ref: 6227479448SG
Our Ref : CI/AIG18013192/N

16 July 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 FIRE INCIDENT INVOLVING THE INSURED VEHICLE GBD 4782E ON 14 JUNE 2018

1. We refer to your letter dated 4 July 2018 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GBD 4782E (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 13 July 2018 at the premises of Tan Chong Motor (herein referred to as "**TCM**") located at 19 Ubi Road 4, Singapore 408623.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

| | |
|--------------------------|--|
| Vehicle Registration No. | : GBD 4782E |
| Make / Model | : NISSAN CABSTAR 3.0 5M/T ABS 2DR 2WD EU 5 |
| Chassis No | : JN1SC2F24Z0856574 |
| Year of Registration | : October 2014 |
| Mileage | : N.A (wiring affected) |

5. The Insured Vehicle was noted to have sustained fire damage that was confined to its centre portion. The fire damage was observed to be most severe at its left centre portion. The exterior body of the Insured Vehicle was relatively unaffected by the fire except for the centre portion. The exterior rear portion of the cab was affected as a result of the fire. See photos 1 – 5 below.



Photo 1 shows the front view of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its centre portion. The exterior body of the Insured Vehicle was relatively unaffected by the fire except for the centre portion.



Photo 2 shows the right side view of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle was relatively unaffected by the fire except for the centre portion. The fire damage to the Insured Vehicle was confined to its centre portion (circled).



Photo 3 shows the left rear view of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle was relatively unaffected by the fire except for the centre portion. The fire damage to the Insured Vehicle was confined to its centre portion. The fire damage was observed to be most severe at its left centre portion (circled).



Photo 4 shows the exterior rear portion of the cab of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its centre portion (circled).



Photo 5 shows the engine compartment of the Insured Vehicle which is situated beneath the cab at the time of our inspection. The rear portion of the engine compartment of the Insured Vehicle was significantly unaffected by the fire (circled).

6. At the time of inspection of the Insured Vehicle, we did not find any additionally fitted electronic and/or electrical component(s) on the Insured Vehicle. There also appears to be no modification(s) fitted on the Insured Vehicle.

Investigation and Technical Analysis

7. For this particular case, the fire appears to have originated from the left centre portion of the Insured Vehicle, where the air cleaner assembly and battery are located as the nature of fire damage was confined to these particular areas. This can be determined from the burn pattern of the air cleaner assembly components which were observed to have been partly melted from the high heat intensity and the high heat intensity burn marks (whitish burn marks) found on the metal brackets holding the battery of the Insured Vehicle. Rust had also developed on these metal brackets.

8. The whitish burn marks are a result of exposure to prolonged heat intensity. Rust would normally start to develop around these areas soon after a fire as prolonged exposure to high heat intensity usually causes steel/metal material body parts to be exposed to natural environmental condition. The rust that had developed on the metal brackets holding the battery is an indication that the left centre position of the Insured Vehicle had sustained exposure to prolonged high heat intensity. See photos 6 - 8 below.



Photo 6 shows the left centre portion of the Insured Vehicle, where the air cleaner assembly and battery are located. The nature of fire damage was confined to these particular areas (circled).



Photo 7 shows a closer view of the air cleaner assembly. The various components of the air cleaner assembly were observed to have been partly melted from the high heat intensity.



Photo 8 shows the high heat intensity burn marks (whitish burn marks) found on the metal brackets holding the battery of the Insured Vehicle (circled). Rust had also developed on these metal brackets (arrowed). The nature of fire damage is an indication as to where the fire started.

9. Upon closer examination of the left centre portion of the Insured Vehicle which was where the fire had likely started, we had found traces of greenish residue on the wirings leading from the battery as well as on the wirings of the air cleaner assembly. The wirings were original factory fitted wirings. The presence of greenish residue indicates internal heating of copper wires, a sign of an electrical short circuit occurring. The greenish residue is normally left behind from oxidation as a result of chemical reaction involving the copper wires. This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature. See photos 9 - 13 below.



Photo 9 shows the wirings leading from the battery of the Insured Vehicle. The wirings were original factory fitted wirings. We observed traces of greenish residue on these wirings (arrowed). The presence of such greenish residue indicates internal heating of copper wires, a sign of an electrical short circuit occurring. The greenish residue is normally left behind from oxidation as a result of chemical reaction involving the copper wires. This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature.



Photo 10 shows a closer view of the greenish residue found on the wirings leading from the battery of the Insured Vehicle (arrowed). This seems to suggest the occurrence of an electrical short circuit.



Photo 11 shows the burnt wirings of the Insured Vehicle's air cleaner assembly. We observed traces of greenish residue on some of these wirings (circled).



Photo 12 shows a closer view of the greenish residue found on the burnt wirings of the Insured Vehicle's air cleaner assembly (circled). This seems to suggest the occurrence of an electrical short circuit.

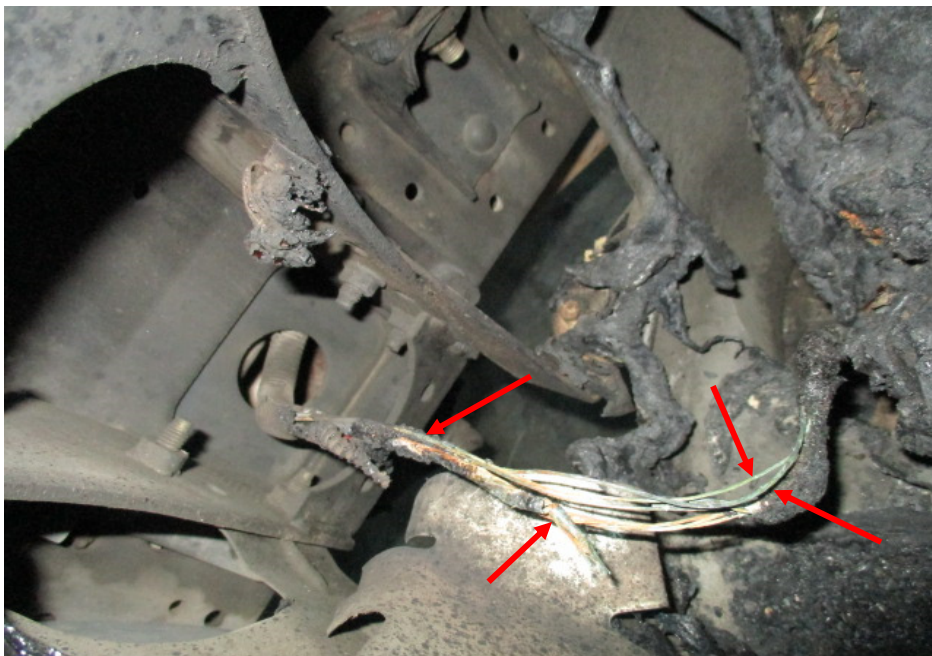


Photo 13 shows a close up view of the greenish residue found on some of the burnt wirings of the Insured Vehicle's air cleaner assembly (arrowed). This seems to suggest the occurrence of an electrical short circuit.

10. From the Singapore Accident Statement which was made by Mr Yeo Liang Swee (herein referred to as “**Mr Yeo**”), we note that the fire to the Insured Vehicle had started at a time when he was driving. Mr Yeo was first alerted of the fire when he smelt smoke in the cab and saw fire coming from outside the left passenger door of the Insured Vehicle.
11. We managed to speak to Mr Yeo with the aid of his daughter, Ms Yeo as an interpreter as Mr Yeo can only speak Mandarin. We were able to gather information pertaining to the incident. We further spoke to Ms Yeo to gather information pertaining to the history of the Insured Vehicle.
12. The Insured Vehicle belongs to Yeo Aquarium Enterprises which is owned by Mr Yeo. Mr Yeo uses the Insured Vehicle for delivery purposes. He is the only driver of the Insured Vehicle. According to Mr Yeo, on the day of the incident he was driving the Insured Vehicle alone from the company office which is located at 7 Lim Chu Kang Lane. He was travelling along PIE and was headed towards Bedok. At about 1530 hours as he was approaching the Lornie Road exit, he smelt smoke in the cab and saw fire from outside of the left passenger door.
13. He immediately stopped the Insured Vehicle by the side of the expressway, switched off the engine and got some water to put out the fire. He poured water over the fire and used a cloth to extinguish the fire. Mr Yeo did not call for assistance but the police and SCDF arrived 30 minutes after the fire was extinguished. Mr Yeo made towing arrangements. He did not take any pictures post- incident as he does not know how to use the camera function on his mobile phone.
14. The tow truck arrived at the incident location shortly. The Insured Vehicle was towed to TCM. Mr Yeo made an insurance report later that same day at 1755 hours.
15. Mr Yeo mentioned that he had not experienced any mechanical or electrical/electronic problems with the Insured Vehicle till the day of the incident. He also mentioned that there were neither warning lights displayed nor was there an abnormal rise in temperature throughout the period the Insured Vehicle was driven.
16. With regard to the history of the Insured Vehicle, we were able to gather from Ms Yeo that the Insured Vehicle was purchased new in 2014. To the best of her recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle.


17. Pertaining to the maintenance aspect, Mr Yeo sends the Insured Vehicle for periodic servicing. The last servicing was approximately 2 months prior to the incident. However Mr Yeo neither services the Insured Vehicle at a regular workshop nor does he keep any invoices.
18. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle. Ms Yeo also informed us that ever since her father purchased the Insured Vehicle, he has done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.
19. Given the circumstances of the incident as reported, the possibility of the cause of fire to the Insured Vehicle being due to engine overheating would seem unlikely as Mr Yeo had mentioned to us there were no indications of abnormally high temperatures when he was driving the Insured Vehicle on the day of the incident. Moreover, an overheated engine would have caused the Insured Vehicle to stall. However in this case, Mr Yeo was the one who noticed the fire coming from outside the left passenger door while he was driving the Insured Vehicle which led him to stop by the side of the expressway and switch off the engine of the Insured Vehicle.
20. The possibility of the fire being due to external factors (foreign material(s) stuck on hot surfaces, arson and sabotage amongst others) would also seem unlikely as the fire occurred as Mr Yeo was driving the Insured Vehicle. The location where the Insured Vehicle caught fire was also observed to be not at a secluded location.
21. The possibility of the fire being due to electrical in nature would then seem more likely given that engine overheating and external factors would both seem unlikely. The fire being due to electrical nature is also supported by the condition of the wirings that were found leading from the battery of the Insured Vehicle, which was earlier discussed in paragraph 9 above.
22. Our checks with both local and international bodies and associations had revealed that at the time of writing this report, there is no manufacturer recall of electrical nature to similar make and model vehicle as the Insured Vehicle that may possibly be related to this incident. See search result from LTA below.

Enquiry on Vehicle Recall - Vehicle Specific

* ONLY INFORMATION ON VEHICLE RECALLS SUBMITTED FROM 9 APRIL 2007 IS AVAILABLE

| Vehicle Owner Particulars | |
|------------------------------|-------------------------------------|
| Owner ID Type: | Business |
| Owner ID: | 9700C ← |
| Vehicle Details | |
| Vehicle Registration number: | GBD4782E ← |
| Make: | NISSAN |
| Vehicle Model: | CABSTAR 3.0 5M/T ABS 2DR 2WD EURO 5 |
| Engine No.: | ZD30342526K |
| Chassis No.: | JN1SC2F24Z0856574 |
| Recall Details | |
| No Recall Detail records ← | |

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Conclusion

23. Having investigated and technically analysed the damages of burnt nature to the Insured Vehicle, we are of the view that the cause of fire to the Insured Vehicle was of electrical in nature. For this particular case, the fire had originated along the original factory fitted wirings leading from the battery of the Insured Vehicle.
24. We did not find any evidence which had suggested that the cause of fire to the Insured Vehicle was due to poor maintenance and/or recurring electrical problem.
25. There were no modification(s) or additional electronic and/or electrical component(s) fitted on the Insured Vehicle at the time of our inspection of the Insured Vehicle.



26. Our investigations had also revealed that at the time of writing this report, there is no manufacturer recall of electrical nature to similar make and model vehicle as the Insured Vehicle that may possibly be related to this incident.

Muhd Nazril

Technical Investigator

Ang Bryan Tani

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