

Our Ref : CI/TP22005579/N

10 June 2022

Ethoz Protect Pte. Ltd.
30 Bukit Batok Crescent
Singapore 658075
(Claims Division)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE GBG 9462E ON 18 MAY 2022**

1. We refer to your letter dated 26 May 2022 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GBG 9462E (herein referred to as “**Insured Vehicle**”) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 30 May 2022 at the premises of Ethoz Protect Pte. Ltd. (herein referred to as “**Ethoz**”) located at 30 Bukit Batok Crescent, Singapore 658075. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: GBG 9462E
Make / Model	: Nissan NV200 1.5 MT ABS AIRBAG 2WD 6DR E5 W/RC
Chassis No	: VSKYBAM20Z0148701
Year of Registration	: December 2017
Mileage	: N.A (battery melted)

4. The Insured Vehicle was noted to have sustained fire damage that was confined to its frontal portion. The entire engine compartment of the Insured Vehicle was observed to be severely burnt while the interior compartment was observed to be seriously affected by the fire.
5. The fire had resulted in the body parts at the frontal portion of the Insured Vehicle to be burnt. This had included its front bumper, front bonnet, front grille, front headlamps, front windscreen and front windscreen wipers, amongst others. See photos 1 – 6 below.



Photo 1 shows the general view of the right rear portion of the Insured Vehicle at the time of our inspection. The rear portion of the Insured Vehicle was relatively unaffected by the fire.



Photo 2 shows the general view of the frontal portion of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its frontal portion. The entire engine compartment of the Insured Vehicle was observed to be severely burnt while the interior compartment was observed to be seriously affected by the fire.



Photo 3 shows the closer view of the left front body of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its frontal portion. Its front bumper, front bonnet, front grille, front headlamps, front windscreen and front windscreen wipers were amongst the body parts that were found to have been affected by the fire.



Photo 4 shows the general view of the front windscreen of the Insured Vehicle at the time of our inspection. The fire damage to the front windscreen was severe.



Photo 5 shows the engine compartment of the Insured Vehicle at the time of our inspection. The entire engine compartment of the Insured Vehicle was observed to be severely burnt. Most of the parts inside the engine compartment were found to be burnt and/or melted as a result of the fire.



Photo 6 shows the interior compartment of the Insured Vehicle, which was seriously affected by the fire.

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 within the engine compartment of the Insured Vehicle, somewhere around the left portion of the engine compartment. This can be determined due to the nature of the fire damage which was more extensive at the left portion, the burn pattern found on the left portion of the front bonnet of the Insured Vehicle and also the high heat intensity burn marks (whitish burn marks) as well as rust that had developed on the underside of the front bonnet, at the left portion.
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 underside of the front bonnet, around the left portion, is an indication that the left portion of the engine compartment had sustained exposure to prolonged high heat intensity. See photos 7 - 9 below.



Photo 7 shows the burn pattern that was found on the left portion of the front bonnet of the Insured Vehicle (arrowed). Such whitish burn marks are a result of exposure to prolonged heat intensity, which may indicate where the fire had started. Rust would also begin to develop on these areas soon after the fire.



Photo 8 shows the whitish marks that were found on the underside of the front bonnet of the Insured Vehicle, at the left portion (circled). Such whitish burn marks are a result of exposure to prolonged heat intensity, which may indicate where the fire had started. Rust would also begin to develop on these areas soon after the fire.



Photo 9 shows the rust that had developed on the underside of the front bonnet, around the left portion (circled). The development of rust is an indication that this area was subjected to prolonged exposure to high heat intensity, which had caused the steel/metal material of the front bonnet to be exposed to natural environmental condition. Hence the fire to the Insured Vehicle can be determined to have originated towards the left portion of the engine compartment.

9. Upon closer examination of the left portion of the engine compartment, which was where the fire to the Insured Vehicle had likely started, we had found greenish residue on several burnt stretches of original factory fitted wirings around the left portion of the engine compartment. 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. See photos 10 - 13 below.

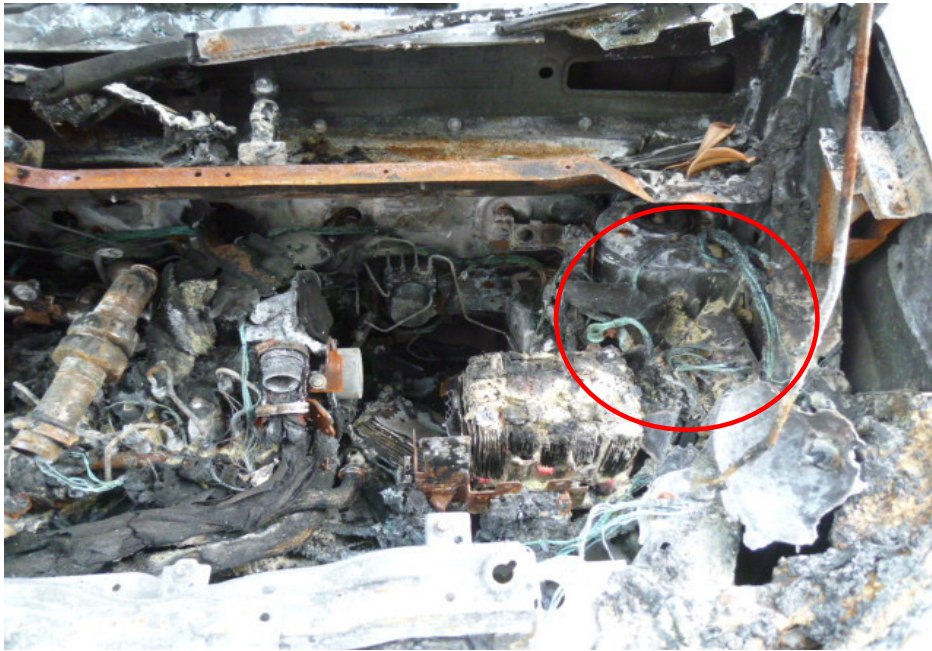


Photo 10 shows the original factory fitted wirings around the left portion of the engine compartment, which is in the immediate vicinity where the fire to the Insured Vehicle had likely started. We had found greenish residue on several burnt stretches of these wirings (circled). The presence of such 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.



Photo 11 shows a closer view of the greenish residue found on some of the burnt stretches of original factory fitted wirings (arrowed). The presence of such greenish residue suggests occurrence of an electrical short circuit.



Photo 12 shows a close up view of the greenish residue found on some of the burnt stretches of original factory fitted wirings (arrowed). The presence of such greenish residue suggests occurrence of an electrical short circuit.

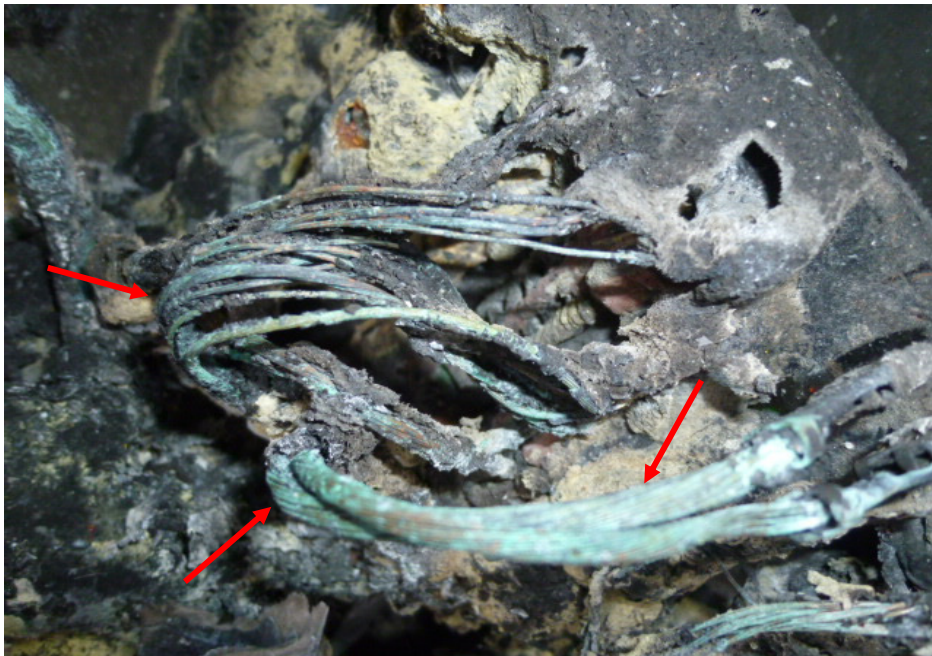


Photo 13 shows a close up view of the greenish residue found on some of the burnt stretches of original factory fitted wirings (arrowed). The presence of such greenish residue suggests occurrence of an electrical short circuit.

10. From the Singapore Police Report No. J/20220518/2116 and Accident Statement which was made by Mr Nur Ridzwan bin Jamaluddin (herein referred to as “**Mr Nur**”), we note that the fire to the Insured Vehicle had started at a time when it was parked. Mr Nur was first alerted of the fire when he saw smoke emitting from the front bonnet of the Insured Vehicle.
11. We were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
12. According to Mr Nur who is a technician for CNW Services who leased the Insured Vehicle from Ethoz, on 18 May 2022 at about 1300 hours he together with his colleague Mr Muhammad Irfan bin Juhuri (herein referred to as “**Mr Irfan**”) had attended a mantrap case at Block 744 Jurong West Street 73. CNW Services provides maintenance services under the Town Council. After they were done at about 1330 hours, Mr Nur drove the Insured Vehicle to a coffee shop located at Block 851 Jurong West Street 81 to buy lunch. Mr Nur parked the Insured Vehicle at the loading bay. After switching off the engine, he noticed white smoke emitting from the front bonnet of the Insured Vehicle. Mr Nur released the front bonnet hatch and wanted to inspect what was the issue but as soon as both of them alighted from the Insured Vehicle, they saw flames emitting from the front bonnet of the Insured Vehicle. They panicked and stepped away from the Insured Vehicle.
13. They looked for a fire extinguisher and tried putting out the fire but it had gotten bigger. Mr Irfan called for the SCDF and informed their office of the incident. SCDF arrived within 10 minutes followed by the police. Firefighters managed to put out the fire in 15 minutes. The police took Mr Nur’s statement. Mr Nur also assisted the SCDF in their preliminary investigations. Mr Nur asked the SCDF fire investigator what had caused the fire. He was told that it might have been from the wirings or battery of the Insured Vehicle. Mr Nur called his manager make towing arrangements about an hour post- incident, after the SCDF had left. The tow truck arrived in 1 hour. The Insured Vehicle was towed to Ethoz.
14. Mr Nur went to the Nanyang Police Centre later that day and lodged a police report at 2110 hours. Mr Nur filed an insurance report the following day, on 19 May 2022 at Ethoz.

15. With regard to the history of the Insured Vehicle, we were able to gather from Mr Selamatshahh Zainal (herein referred to as **“Mr Selamat”**) who is a senior executive at Ethoz that the Insured Vehicle was purchased new in 2017 and later leased to CNW Services.
16. Mr Nur mentioned that he had no issues whilst driving the Insured Vehicle. There was no loss of power to the Insured Vehicle.
17. Mr Nur also informed us that ever since he drove the Insured Vehicle since 2018, he has not done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.
18. Mr Nur told us that he neither noticed any warning lights nor abnormally high temperatures whilst driving the Insured Vehicle.

Incident Scene Photographs

19. We were able to obtain photographs of the Insured Vehicle which were taken during as well as after the fire had been extinguished. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Nur. Our close examination of these photographs also showed no unusual foreign material(s) and/or object(s) found on the ground in the immediate area of the loading bay where the Insured Vehicle was parked. See photos 14 - 16 below.



Photo 14 shows the Insured Vehicle on fire before the arrival of the SCDF. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Nur, which is the fire had started from the engine compartment of the Insured Vehicle (arrowed).




Photo 15 shows a firefighter putting out the fire on the Insured Vehicle (arrowed). In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Nur, which is the SCDF were present at the incident location.



Photo 16 shows the Insured Vehicle after the fire had been extinguished.

20. Pertaining to the maintenance aspect, Mr Selamat informed us that the Insured Vehicle is serviced in- house at Ethoz. He also mentioned that since the Insured Vehicle was serviced in- house, they do not keep invoices. He was able to provide us with the details of the latest periodic servicing which was done on 29 April 2022. The servicing package had included the changing of engine oil, oil filter, air filter, aircon filter and diesel filter. The wiper blades and drive belt were also replaced.

21. Based on the latest vehicle service details provided, we are of the opinion that it is unlikely that the fire could have been caused by poor maintenance of the Insured Vehicle.
22. Given the circumstances of incident as reported, the possibility of the cause of fire to the Insured Vehicle being due to engine overheating would seem unlikely as Mr Nur 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 Nur had already parked and switched off the engine of the Insured Vehicle. Therefore, we are of the opinion that the fire was not caused by an overheated engine.
23. 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 location where the Insured Vehicle caught fire was observed to be not at a secluded location.
24. 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 in the engine compartment of the Insured Vehicle, which was earlier discussed in paragraph 9 above.
25. 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.



Vehicle Recall Details

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

Owner ID Type Company	Owner ID 943G ←
Vehicle No. GBG9462E ←	Make/Model NISSAN/ NV200 1.5 MT ABS AIRBAG 2WD 6DR E5 W/RC
Engine No.: K9KC400D057708	Chassis No.: VSKYBAM20Z0148701
Recall Details: No Recall Detail records ←	

Conclusion

26. 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 inside the engine compartment, somewhere around the left portion of the engine compartment.
27. 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.
28. 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.

29. 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***Senior Technical Investigator***Ang Bryan Tani***AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA**Senior Technical Investigator**Technical Investigation & Reconstructionist (SAE-A)*

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