

Our Ref : CI/TP22008145/N

17 August 2022

Ethoz Protect Pte. Ltd.22 Tampines Street 92
Singapore 528876
(Claims Division)**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE GBH 7701Z ON 19 JULY 2022**

1. We refer to your letter dated 10 August 2022 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GBH 7701Z (herein referred to as “**Insured Vehicle**”) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 16 August 2022 at the premises of Ethoz Group Ltd. (herein referred to as “**Ethoz**”) located at 22 Tampines Street 92, Singapore 528876. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: GBH 7701Z
Make / Model	: Nissan NV200 1.5 MT
Chassis No	: VSKYBAM20Z0170987
Year of Registration	: September 2018
Mileage	: N.A (battery melted)

4. The Insured Vehicle was observed to have sustained severe fire damage all around. Its engine compartment and interior compartment were completely burnt. Rust had accumulated all over the Insured Vehicle as a result of exposure to environmental condition for a period of time. See photos 1 – 4 below.



Photo 1 shows the general view of the left rear portion of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage all around. Rust had accumulated all over the Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 2 shows the general view of the frontal portion of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage all around. Its engine compartment and interior compartment were completely burnt. Rust had accumulated all over the Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 3 shows the general view of the interior compartment of the Insured Vehicle at the time of our inspection. Its interior compartment was completely burnt.



Photo 4 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.

5. 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

6. 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 due to the nature of the fire damage which was more extensive at the left portion. This can also be determined from the burn pattern and the high heat intensity burn marks (whitish burn marks) found on the left portion of the bonnet of the Insured Vehicle. The whitish burn marks are a result of exposure to prolonged heat intensity. See photos 5 & 6 below.



Photo 5 shows the right body of the Insured Vehicle. The nature of the fire damage was less extensive at the right portion (arrowed).



Photo 6 shows the burn pattern and whitish burn marks that were found on the left front fender of the Insured Vehicle (circled). Such whitish burn marks are a result of exposure to prolonged heat intensity, which may indicate where the fire had started.

7. 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 traces of greenish residue on several stretches of burnt wirings leading from the Engine Control Module (ECM). 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 7 - 10 below.



Photo 7 shows the burnt wirings leading from the ECM around the left portion of the engine compartment (circled), which is in the immediate vicinity where the fire to the Insured Vehicle had likely started.



Photo 8 shows a closer view of the burnt wirings leading from the ECM 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 noticed greenish residue on several stretches of burnt wirings (arrowed). 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.



Photo 9 shows a closer view of the greenish residue found on several stretches of burnt wirings leading from the ECM (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

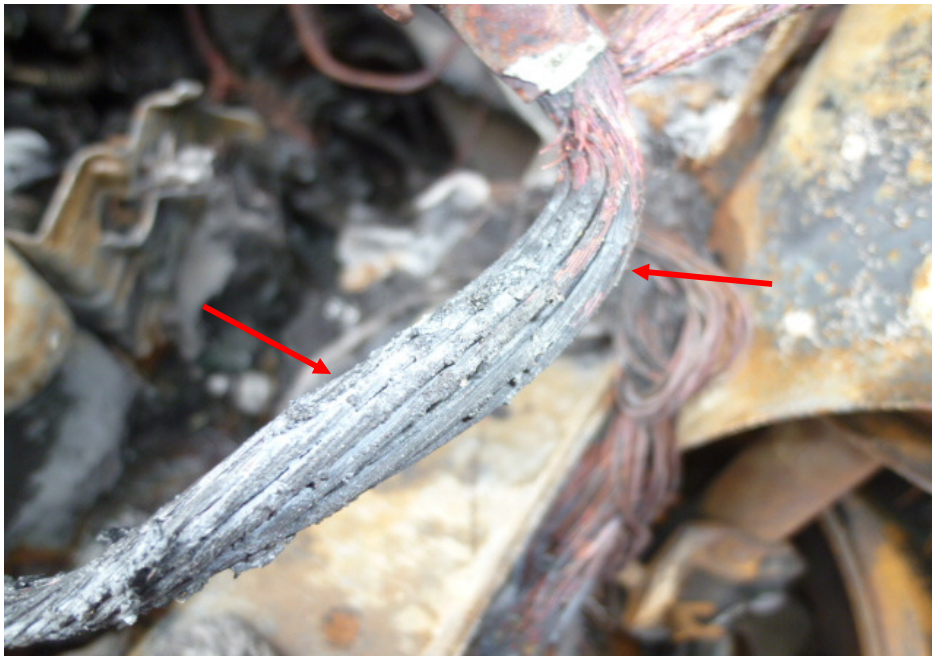



Photo 10 shows a close up view of the greenish residue found on several stretches of burnt wirings leading from the ECM (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

8. From the Singapore Police Report No. G/20220719/2084 and Accident Statement, which was made by Mr Chua Chye Poh (herein referred to as “**Mr Chua**”), we note that the fire to the Insured Vehicle had started at a time while he was driving. He was alerted of the fire when he saw smoke emitting from the front bonnet.
9. We managed to speak to Mr Chua where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
10. Mr Chua is a driver for Gardenia Food (S) Pte. Ltd. which supplies bread to various vendors. According to Mr Chua, at about 1345 hours on 19 July 2022, he together with a colleague, were headed towards Ubi to drop off bread samples he had collected from the Gardenia factory located at Pandan Loop. Mr Chua travelled along PIE (Tuas) and took the Paya Lebar Road exit. Mr Chua mentioned that as he was driving along the PIE, he noticed that the air conditioning was malfunctioning. As he exited the expressway, he noticed smoke emitting from the front bonnet. He immediately stopped the Insured Vehicle and switched off the engine. By then a few passing by motorists exclaimed to Mr Chua that the base of the Insured Vehicle was on fire. Coincidentally, there was a Traffic Police officer who happened to ride by. He attended to the incident and instructed Mr Chua to stand clear of the Insured Vehicle. Mr Chua quickly called Ethoz to inform them of the incident and to make towing arrangements. Mr Chua mentioned that somebody must have called 995 as the SCDF arrived within 5 minutes.
11. Firefighters extinguished the fire within 10 minutes. The police were also present at the incident location. Mr Chua informed us that an EMAS tow truck had arrived first to the incident location and towed the Insured Vehicle to the Breadtalk HQ building nearby. The tow truck arrived in 30 minutes but the Insured Vehicle could not be towed as all 4 tyres were burnt as a result of the fire. The tow truck was not equipped to tow the Insured Vehicle which was only towed the following day. Mr Chua hitched a ride with the tow truck to the Ethoz branch at Bukit Batok Crescent to make an insurance report. He was informed to lodge a police report first. Mr Chua did so at the Tampines Neighbourhood Police Centre later that same day at 1747 hours. He then made the insurance report at Ethoz Bukit Batok on 20 July 2022 at 1428 hours.

12. With regards to the history of the Insured Vehicle, we were able to gather from Mr Jonathan Lim (herein referred to as “**Mr Lim**”) of Ethoz that the Insured Vehicle was purchased in 2018. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle.
13. Pertaining to the maintenance aspect, Mr Lim mentioned that the Insured Vehicle is sent for periodic servicing.
14. During the course of our investigations, we were also able to obtain from Mr Lim, a document relating to the latest servicing records of the Insured Vehicle. The Insured Vehicle was last serviced at Ethoz’s in-house workshop located at 224 Pandan Loop, Singapore 128411 on 2 March 2022, almost 4 months before the incident occurred. The servicing package had included the changing of engine oil, oil filter and diesel filter. The wiper blades, fan motor, aircon compressor, and tyres were replaced. The air filter and aircon filter were also serviced. Refer to Invoice 1 below.



SERVICE REPORT

VEHICLE NO : GBH-7701-ZOCR NISSAN NV200 1.5 DIESEL G (1500) COMPANY → ETHOZ Auto Leasing LTD. 224 PANDAN LOOP	RE (OPR) JOB CARD NO. : JC/201349 SERVICE NO : 22030109 DATE & TIME IN : 02/03/2022 09:15 ← MILEAGE : 136118 SVC ADVISOR JOB DONE BY : HO HONG THYE, RAYD INVOICE NUM :
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COMPLAINT DETAILS

1. Job Package-**PREVENTIVE MAINTENANCE PACKAGE TYPE X**(Air Con having weird noises + Servicing)
 1. Job Package-**COMMERCIAL VEHICLE MAINTENANCE PACKAGE TYPE X**(Air Con having weird noises)
 2. Job Package-**COMMERCIAL VEHICLE MAINTENANCE PACKAGE TYPE X**

S.N.	JOB DONE
1	SERVICE COMMERCIAL VEHICLE MAINTENANCE PACKAGE TYPE X SERVICE COMPLEMENTARY RESET NEXT SERVICE REMINDER SERVICE COMPLEMENTARY CAR WASH AND VACUUM RENEW OIL FILTER RENEW ENGINE OIL INSPECT TOOLS KIT (BREAKDOWN KIT) PRESENT AND SERVICEABLE INSPECT QUALITY CHECK
2	RENEW WIPER BLADE
3	RENEW WIPER BLADE
4	RENEW FAN MOTOR
5	RENEW DIESEL FILTER
6	RENEW AIRCON COMPRESSOR
7	RENEW TYRE - 4 PCS
8	SERVICE AIR FILTER
9	SERVICE AIRCON FILTER
10	SERVICE HANDBRAKE FREEPLAY (RE-ADJUST)

1. I acknowledge that the works listed above "JOB DONE" have been carried out to my satisfaction.
 2. I acknowledge that the works listed above "JOB DECLINED BY CUSTOMER" were recommended to me by ETHOZ but I have declined to give my consent for these works to be done. I further acknowledge that I have been fully advised of the potential dangers that may arise from using the vehicle in spite of these works not being done. Hence, I hereby agree to indemnify ETHOZ against any/all claims, demands and/or legal proceedings whatsoever made or to be made by any party or parties (which shall include but not be limited to claims relating to death, personal injury and/or damage to property) as a result of my declining to have these works done.

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CUSTOMER'S NAME	CUSTOMER'S SIGNATURE	DATE
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Invoice 1 shows the last servicing package done on the Insured Vehicle on 2 March 2022 at an Ethoz in-house workshop (arrowed) which included changing of engine oil, oil filter and diesel filter. The wiper blades, fan motor, aircon compressor, and tyres were replaced. The air filter and aircon filter were also serviced (circled).

Incident Scene Photographs

15. We were able to obtain from Mr Chua, photos of the Insured Vehicle which were taken during and after the fire was put out. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Chua. 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 where the Insured Vehicle was positioned. See photos 11 – 13 below.



Photo 11 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 Chua which is a Traffic Police officer had attended to the incident (arrowed).




Photo 12 shows the SCDF attempting to put out the fire on the Insured Vehicle (arrowed).



Photo 13 shows the Insured Vehicle post- incident. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Chua which is the police were present at the incident location (arrowed).

16. Based on the vehicle service record invoice provided, we are of the opinion that it is unlikely that the fire could have been caused by poor maintenance of the Insured Vehicle.
17. 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 Chua had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle when he was driving on that day. Moreover, an overheated engine would have caused the Insured Vehicle to stall. However in this case, Mr Chua was the one who noticed smoke emitting from the front bonnet while he was driving and stopped the Insured Vehicle. Therefore, we are of the opinion that the fire was not caused by an overheated engine.
18. 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 given that our examination of the available incident scene photographs did not reveal any unusual material(s)/object(s) found on the ground where the Insured Vehicle was positioned. The location of where the Insured Vehicle was positioned was also observed to be not at a secluded location.
19. 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 7 above.
20. 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. GBH7701Z ←	Make/Model NISSAN/ NV200 1.5 MT
Engine No.: K9KE628D615521	Chassis No.: VSKYBAM20Z0170987
Recall Details: No Recall Detail records ←	

Conclusion

21. Having investigated and technically analysed the damages 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 wirings inside the engine compartment, leading from the ECM. The wirings were original factory wirings of the Insured Vehicle.
22. 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.
23. 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.

24. 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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