

Your Ref: 22/23/23/VC05/027650
Our Ref : CS4/LPC23006887/N

13 July 2023

M/s Lonpac Insurance Berhad
300 Beach Road #17-04/06
The Concourse
Singapore 199555
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE GBC 1782E ON 24 JUNE 2023**

1. We refer to your letter dated 7 July 2023 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GBC 1782E (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 7 July 2023 at the premises of K & M Motor Pte. Ltd. (herein referred to as "**K & M**") located at 51 Ubi Avenue 1, #03-18, Paya Ubi Industrial Park, Singapore 408933.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: GBC 1782E
Make / Model	: Nissan NV200 1.5L MT ABS AIRBAG 2WD 6DR
Chassis No	: VSKYBAM20U0022524
Year of Registration	: July 2011
Mileage	: N.A (wiring affected)

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 bonnet and front windscreen, amongst others. The interior compartment was observed to be relatively unaffected by the fire.
6. The fire had resulted in the components in the engine compartment of the Insured Vehicle to be burnt. Affected parts had included the battery and engine block, amongst others. See photos 1 – 6 below.



Photo 1 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. Its front windscreen, front bonnet, front bumper and left front headlamp were amongst the body parts that were found to have been affected as a result of the fire.



Photo 2 shows the general view of the right body of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its frontal portion. The right body was found to have been relatively unaffected by the fire.



Photo 3 shows the general view of the rear 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 rear portion was found to have been relatively unaffected 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 of the Insured Vehicle was minimal.



Photo 5 shows the interior compartment of the Insured Vehicle, which was observed to be relatively unaffected by the fire.



Photo 6 shows a general view of the engine compartment of the Insured Vehicle which was covered in fire extinguisher residue at the time of our inspection. Most of its engine components were found to have been affected as a result of the fire.

7. 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

8. For this particular case, the fire appears to have originated within the engine compartment of the Insured Vehicle, somewhere around the left centre portion of the engine compartment. This can be determined from the burn pattern and the high heat intensity burn marks (whitish burn marks) found on the left centre portion of the front bonnet of the Insured Vehicle and also the rust that had developed on the underside of the front bonnet, at the left bottom portion.
9. 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 bottom portion, is an indication that the left centre portion of the engine compartment had sustained exposure to prolonged high heat intensity. See photos 7 & 8 below.



Photo 7 shows the burn pattern and whitish burn marks (circled) that were found on the left centre portion of the front bonnet of the Insured Vehicle. 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 rust that had developed on the underside of the front bonnet, around the left bottom 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 centre portion of the engine compartment.

10. Upon closer examination of the engine compartment, in particular to the wire harness closest to the radiator, we had found faint traces of greenish residue on several burnt stretches of original factory fitted wirings around the left centre 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. We also observed that the wirings under the fuse box had partially melted. These physical evidences 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 burnt stretches of original factory fitted wirings near the radiator, which is in the immediate vicinity where the fire to the Insured Vehicle had likely started. Faint traces of greenish residue were found on some of the wirings (circled). The presence of such greenish residue suggests occurrence of an electrical short circuit.



Photo 10 shows a closer view of the burnt stretches of original factory fitted wirings near the radiator, which is in the immediate vicinity where the fire to the Insured Vehicle had likely started (circled).



Photo 11 shows a close up view of the wirings under the fuse box of the Insured Vehicle which had partially melted (arrowed).

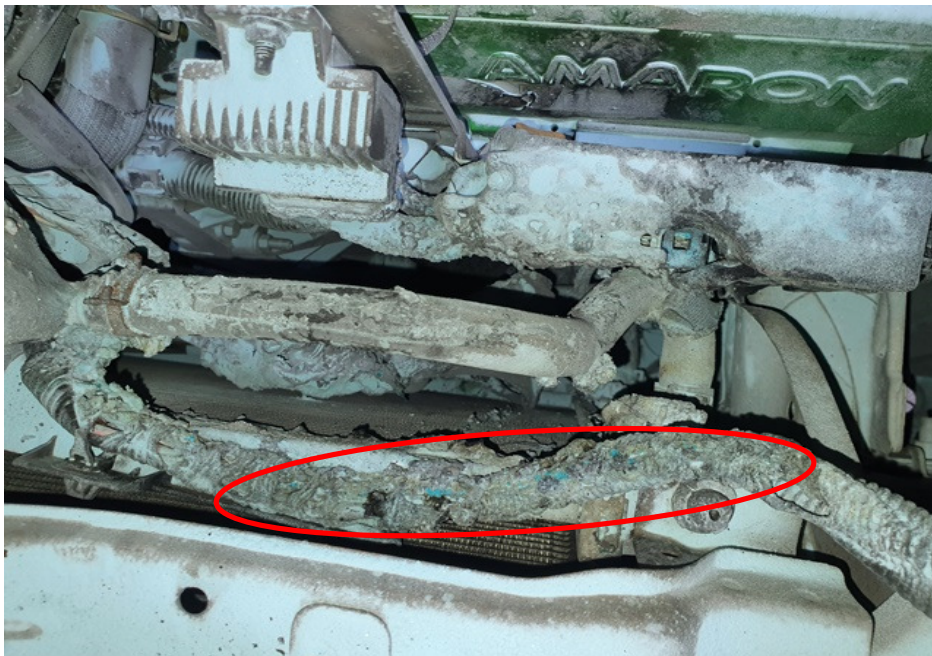


Photo 12 shows a closer view of the burnt stretches of original factory fitted wirings near the radiator, which is in the immediate vicinity where the fire to the Insured Vehicle had likely started. Faint traces of greenish residue were found on some of the wirings (circled).

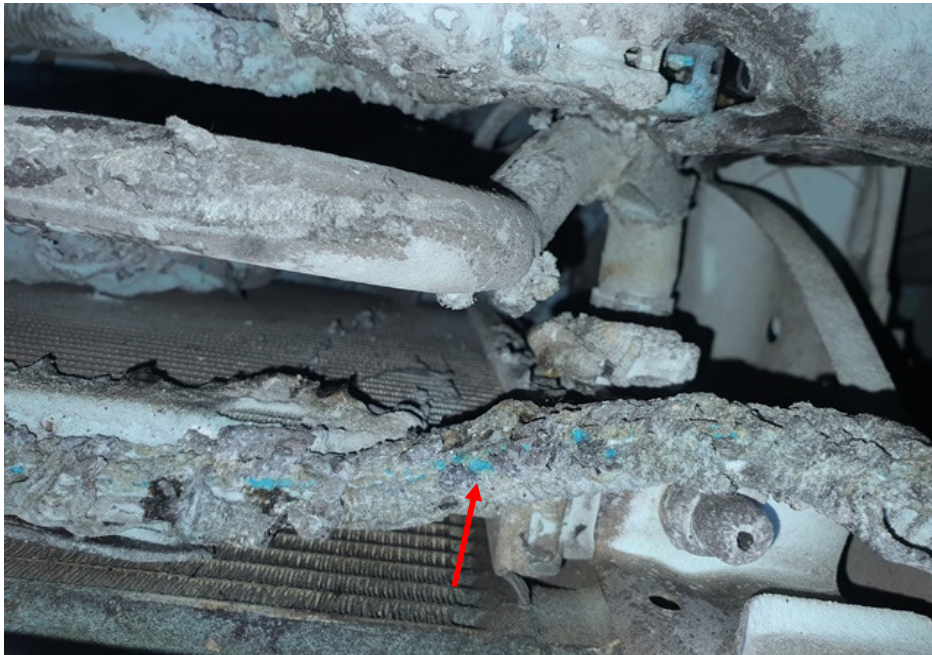



Photo 13 shows a close up view of the wirings around the radiator which is near to the vicinity where the fire to the Insured Vehicle had likely started. We observed greenish residue on the wirings (arrowed).

11. From the Singapore Accident Statement which was made by Mr Gannanathan Meiyathan (herein referred to as **“Mr Nathan”**), who is the driver for Fit Transport Systems Private Limited (herein referred to as **“FTS”**), we note that the fire to the Insured Vehicle had started at a time when he was driving. Mr Nathan was first alerted of the fire when he saw white smoke emitting from the left portion of the front bonnet of the Insured Vehicle while he was driving along Bedok Reservoir View.
12. We managed to speak to Mr Nathan where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
13. According to Mr Nathan, on 24 June 2023 at about 1250 hours, Mr Nathan was driving from 80 Bedok North Avenue 3 and was headed to Block 746 Bedok Reservoir Road to get lunch. Along the way, he noticed white smoke emitting from the left portion of the front bonnet. He quickly turned into the nearest HDB Block and stopped the Insured Vehicle at the loading bay. He immediately switched off the engine and attempted to open the front bonnet but it was too hot. He grabbed a bottle of water and poured it over the front bonnet to cool it down. When he finally lifted the front bonnet, he saw flames emitting from the left portion, near the radiator and fuse box of the Insured Vehicle.

14. He went to the nearby coffeeshop and got a fire extinguisher. He managed to put out the fire within 10 minutes. Mr Nathan then called his team leader Mr Budi and informed him of the incident. Mr Budi made towing arrangements. Mr Nathan left the incident scene and headed back to get another vehicle. Mr Budi arrived at the incident scene within the next hour and witnessed the Insured Vehicle being prepped for towing. He did not follow the tow truck. The Insured Vehicle was towed to K & M. An insurance report was made at K & M by Mr Nathan on 5 July 2023.
15. We asked Mr Budi why the insurance report was only made almost 2 weeks after the incident occurred. He informed us that they did not receive any call to make any report until almost 2 weeks later from K & M.
16. With regard to the history of the Insured Vehicle, Mr Nathan mentioned that he was assigned to the Insured Vehicle when he joined the company in September 2022. He is the only driver of the Insured Vehicle and he was allowed to drive it home. We also asked Mr Budi who informed us that the Insured Vehicle was bought secondhand but he has no knowledge when as he only joined FTS in 2021.
17. During the course of our investigations, we were able to obtain from K & M the latest servicing and repair records of the Insured Vehicle. The latest servicing was done on 23 May 2023 at K & M which included changing of engine oil, oil filter, air filter and aircon filter. The lower arm and linkages were replaced. Wheel alignment was also done. Refer to Invoice 1 below.

 K & M MOTOR PTE LTD		INVOICE Our Ref : 11009 Date : 23/05/2023 Vehicle No. : GBC1782E			
To FIT Transport Systems Pte Ltd Tel : Attn: Email: finance@fittsystemsgroup.com Vehicle No. : GBC1782E					
No.	Item Code	Description	Qty	U.P (S\$)	Amount (S\$)
1	SER0001	Servicing Packages	1	70.00	70.00
2	SOR J-1	Air Con Filter	1	28.00	28.00
3	SOR D-9	Air Filter	1	25.00	25.00
4	SOR H-14	Lower Arm	2	150.00	300.00
5	SOR H-13	Linkages (set of 2)	1	65.00	65.00
6	SOR K-15	Computerised Wheel Alignment	1	60.00	60.00
7	LABOUR SOR	Labour Charges	1	80.00	80.00
				Total	628.00

All Cheque should be crossed and made payable to **K & M MOTOR PTE LTD**

VICKI LIN
FOR K & M MOTOR PTE LTD

Invoice 1 shows the last servicing package done on the Insured Vehicle on 23 May 2023 at K & M (red arrows) which included changing of engine oil, oil filter, air filter and aircon filter. The lower arm and linkages were replaced. Wheel alignment was also done (circled).

18. Mr Nathan mentioned that since the latest servicing was done he had not experienced any other mechanical or electrical problems with the Insured Vehicle. He also mentioned that there were neither warning lights displayed nor was there an abnormal rise in temperature of the Insured Vehicle while he was driving before the incident occurred.


Incident Scene Photograph

19. We were able to obtain from Mr Nathan a photograph of 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 Nathan. See photo 14 below.



Photo 14 shows the engine compartment of the Insured Vehicle at the incident location 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 Nathan, which is the fire to the Insured Vehicle had started from the left portion of the engine compartment (arrowed).

20. 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 Nathan 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 Nathan 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.
21. 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 photograph did not reveal an unusual material(s)/object(s) found on the ground near where the Insured Vehicle had caught fire. Furthermore, the location of where the Insured Vehicle was positioned was also observed to be not at a secluded location.
22. 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 faint traces of greenish residue that were found on several burnt stretches of original factory fitted wirings around the left centre portion of the engine compartment of the Insured Vehicle, which was earlier discussed in paragraph 10 above.
23. 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 483E
Vehicle No. GBC1782E	Make/Model NISSAN/ NV200 1.5L MT ABS AIRBAG 2WD 6DR
Engine No.: K9KF276D123209	Chassis No.: VSKYBAM20U0022524
Recall Details: No Recall Detail records	

Conclusion

24. 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 wirings around the engine compartment. The wirings were original factory wirings around the left centre portion of the engine compartment of the Insured Vehicle.
25. 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.
26. 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.

27. 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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