LKK Auto Consultants Pte Ltd
Company Registration No. 199607198R
51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108

Our Ref : CS/III24060212/N 4 July 2024

M/s India International Insurance Pte. Ltd.
64 Cecil Street #05-02
IOB Building
Singapore 049711
(P & C Claims Department)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE GBH 650H ON 20 JUNE 2024

1. We refer to your letter dated 28 June 2024 and the instructions therein.

2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GBH 650H (herein referred to as **"Insured Vehicle"**) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 25 June 2024 at the premises of Pan Pacific Van & Truck Leasing Pte. Ltd. (herein referred to as **"Pan Pac"**) located at 37 Loyang Way, Singapore 508734.

4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: GBH 650H
Make / Model	: NISSAN CABSTAR 3.0 5M/T ABS 2DR 2WD EURO 5
Chassis No	: JN1SC2F24Z0860949
Year of Registration	: December 2017
Mileage	: N.A (wiring affected)

5. The exterior body of the Insured Vehicle had not sustained any visible fire damage with the exception of the right and rear portion of the driver cabin. The interior compartment of the Insured Vehicle was severely affected by the fire.

6. The fire had resulted in the components in the engine compartment of the Insured Vehicle to be burnt. Most of the components inside the engine compartment were found to be severely burnt and/or melted as a result of the fire. See photos 1 – 6 below.

Photo 1 shows the frontal portion of the Insured Vehicle at the time of our inspection. The damage to the Insured Vehicle was confined to its interior and engine compartments. The exterior body of the Insured Vehicle was relatively unaffected by the incident except for the right and rear portion of the driver cabin.

Photo 2 shows the right frontal portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle was relatively unaffected by the incident except for the right and rear portion of the driver cabin.

Photo 3 shows the interior compartment the Insured Vehicle at the time of our inspection. The centre portion of the interior compartment of the Insured Vehicle was severely affected by the fire (circled).

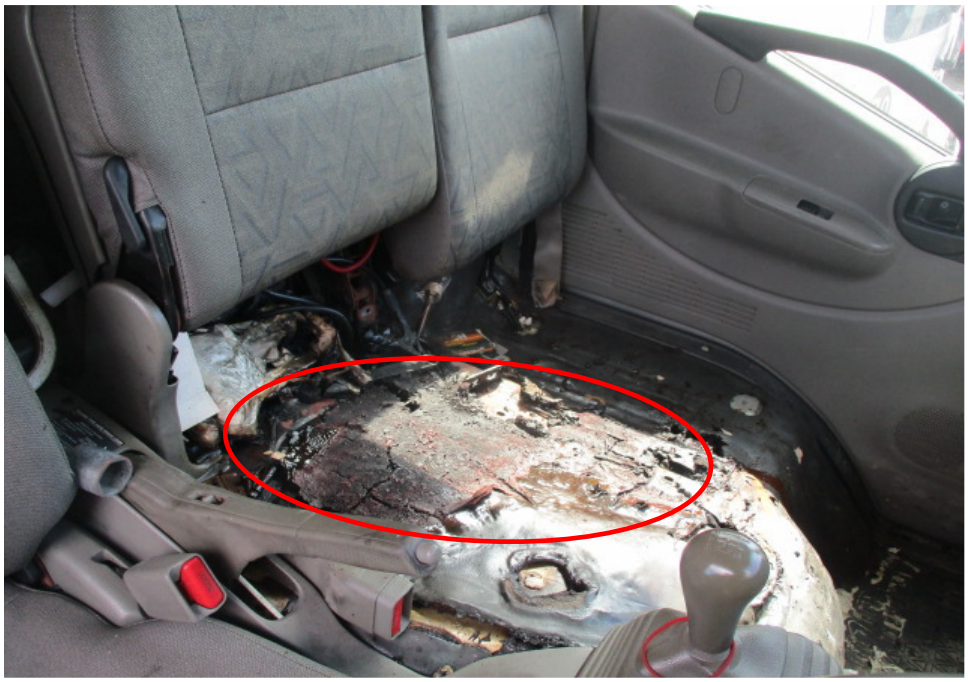

Photo 4 shows a closer view of the interior compartment of the Insured Vehicle at the time of our inspection. The centre portion of the interior compartment of the Insured Vehicle was severely affected by the fire (circled).

Photo 5 shows the cab of the Insured Vehicle at the time of our inspection. The damage to the cab of the Insured Vehicle was confined to its rear portion (arrowed).

Photo 6 shows the engine compartment of the Insured Vehicle which is situated beneath the cab at the time of our inspection. The engine compartment of the Insured Vehicle was seriously affected by 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. This can be determined from the burn pattern and the high heat intensity burn marks (whitish burn marks) found on the underside of the cab as well as the rust that had developed on the cab mounting bracket of the Insured Vehicle.

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 cab mounting bracket of the Insured Vehicle is an indication that the engine compartment had sustained exposure to prolonged high heat intensity. See photos 7 & 8 below.

Photo 7 shows the whitish burn marks that were found on the underside of the cab of the Insured Vehicle (circled). Such whitish burn marks are a result of exposure to prolonged heat intensity.

Photo 8 shows the rust that had developed on the cab mounting bracket of the Insured Vehicle (arrowed) which is an indication that the fire to the Insured Vehicle had originated from the engine compartment. The development of rust is an indication that the area was exposed to prolonged exposure to high heat intensity, which had caused the steel/metal material of the passenger side engine access panel to be exposed to natural environmental condition.

10. Upon closer examination of the engine compartment of the Insured Vehicle which was where the fire had likely started, we had found traces of greenish residue on several burnt stretches of wirings around the centre portion of the engine compartment. 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 - 11 below.

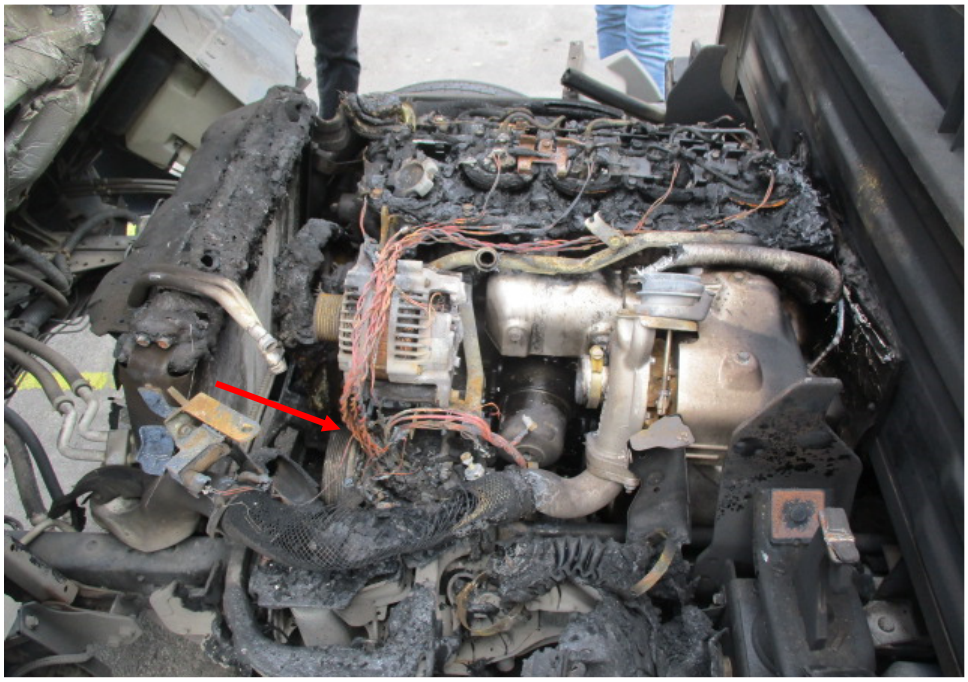

Photo 9 shows the burnt wirings around the centre portion of the engine compartment of the Insured Vehicle. The wirings were original factory fitted wirings. We observed traces of greenish residue on these wirings (arrowed). The presence of such greenish residue indicates internal heating of copper wires, a sign of an electrical short circuit occurring.

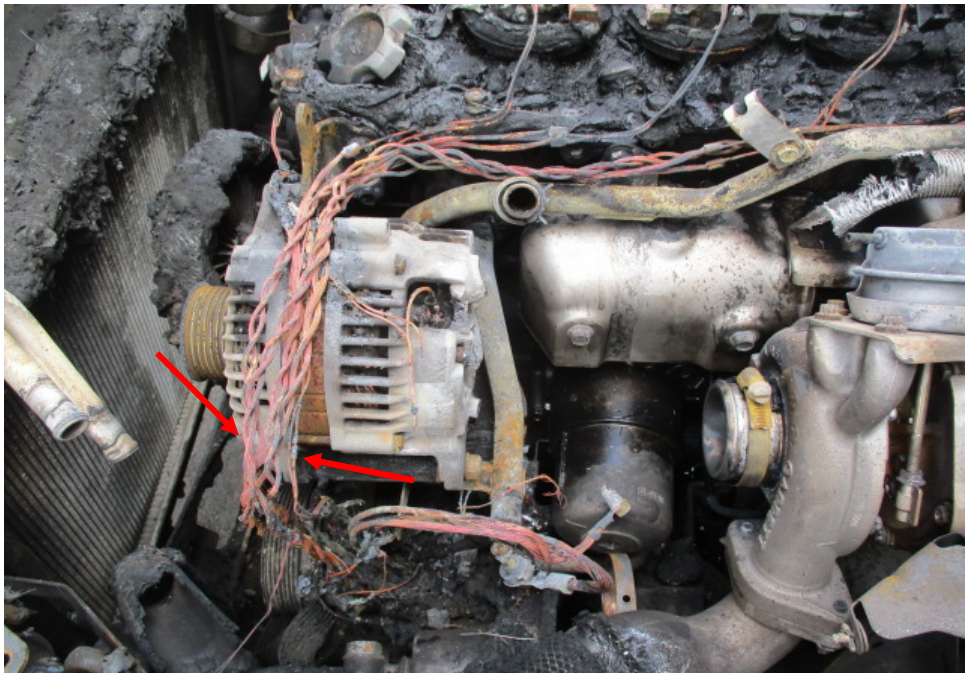

Photo 10 shows a closer view of the greenish residue found on the wirings around the centre portion of the engine compartment of the Insured Vehicle (arrowed). The greenish residue is normally left behind from oxidation as a result of chemical reaction involving the copper wires.

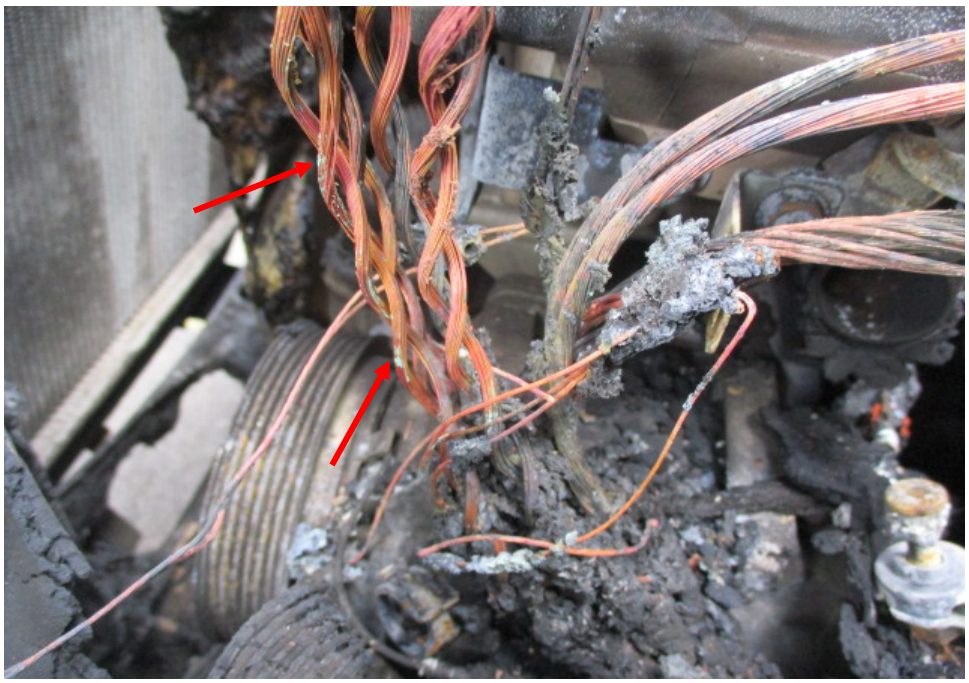

Photo 11 shows a close up view of the greenish residue found on the wirings around the centre portion of the engine compartment of the Insured Vehicle (arrowed). This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature.

11. From the Singapore Police Report No. T/20240621/7071 and Accident Statement which was made by Mr Gazi Haridoy (herein referred to as **"Mr Gazi"**), we note that Mr Gazi was first alerted to mechanical issues with the Insured Vehicle.

12. We managed to speak to Mr Gazi where we were able to gather information pertaining to the incident.

13. The Insured Vehicle belongs to Pan Pac which is leased to Yellowbox Pte. Ltd. (herein referred to as **"Yellowbox"**). Mr Gazi who is an employee of Yellowbox is the only driver of the Insured Vehicle. According to Mr Gazi, on the day of the incident, he was driving the Insured Vehicle from Woodlands and was headed to the company's factory located at Gul Circle. He was travelling alone along PIE (Tuas) just after the Jalan Bahar exit when he noticed the Insured Vehicle being under-powered. Soon after the engine stopped. Mr Gazi tried to re-start the engine but to no avail. He manoeuvred the Insured Vehicle towards the road shoulder. That was when he noticed smoke coming from the rear portion of the cabin. He removed the ignition key and exited the Insured Vehicle. Mr Gazi mentioned he saw fire from underneath the cab. He called his boss who asked him to call 995. Mr Gazi tried to lift the cabin but the lever was stuck.

14. The SCDF came first within 5 minutes followed by the police. The police redirected traffic whilst firefighters attempted to put the fire. Firefighters were able to extinguish the fire within 30 minutes. Mr Gazi mentioned that SCDF was able to lift up the cabin after the fire was put out. The SCDF fire investigator arrived some time after and Mr Gazi assisted the SCDF with their preliminary investigations.

15. Mr Gazi's boss made towing arrangements. The tow truck arrived in approximately 2 hours. Mr Gazi hitched a ride with the towing personnel. The Insured Vehicle was towed to Pan Pac. Mr Gazi made an insurance report the next day on 21 June 2024 at Pan Pac at 1417 hours followed by a police report at the Traffic Police HQ at 1556 hours.

16. Mr Gazi 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.

17. With regard to the history of the Insured Vehicle, we were able to gather from Mr Gazi that he has been driving the Insured Vehicle for past 4 years. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle.

18. Pertaining to the maintenance aspect, Mr Gazi sends the Insured Vehicle for periodic servicing at Century Motors (Singapore) located at 48 Pandan Road, #01-05, Singapore 609289. The last servicing was approximately 2 weeks prior to the incident.

19. During the course of our investigations, we were also able to obtain from Ezel, an employee of Pan Pac, a recent document relating to the servicing done to the Insured Vehicle. The latest servicing was done on 11 June 2024. The servicing package included changing of engine oil, oil filter and gasket. The signal bulb was replaced and right front tyre was also patched. Refer to Invoice 1 below.

Certified Pre-Owned SERVICES
Co. Reg No. : 196700686Z
GST Reg No. : MR-8500003-9
2 PANDAN CRESCENT
INCHCAPE CENTRE LEVEL 1
SINGAPORE 128462, Tel No. 6831 1666

TAX INVOICE

Account Details	Account No.	Customer Details
CMP- EFFICIENT MOTOR AND ENGINEERING WORKS PT	i1500252 / ICPOSCMP	M/S Pan Pacific Van & Truck Leasing Pte Ltd 8 Chang Cham Road #04-01 Link (thm) Building Singapore 159637
	Document No. 26007086	
	Document Date 26/06/2024	Mobile: 87972030

Year	Model	Variant	Reg. Date	Reg. No.	Kilometers	Wip No.	Order No. / Remarks
2017	NISSAN	NISSAN CABSTAR	28/12/2017	GBH0650H	300271	16191	

Chassis No.	Engine No.	Terms	SA / Counter	Vehicle In		Collected On	
JN1SC2F24Z0660949	ZD30026826N	00	Jason Wong B C	11/06/2024	13,26	26/06/2024	11,09

L	Co	Job/Parts Description	Qty
	M	ZA S10S-SC2F2-CMP	
1	*	S10N-CMP 300 000KM CV SERVICE PACKAGE - CMP	*
		check lighting and tyres	
		replace bulb signal---done	
		patch right front tyres---done	
2	*	C-E5 DIESEL 5W30	8.00
3	*	ZNSWJ740W OIL FILTER (WST)	1.00
4	*	T90430-12031 GASKET	1.00
5	1	ZTO17535 BULB SINGLE 12V 21W	2.00
6	2	ZTO17916 BULB DOUBLE 12V 21/5W	1.00

For & on behalf of Borneo Motors (Singapore) Pte Ltd	Customer's Signature	
	Please acknowledge receipt of vehicle	

Customer Copy

Invoice 1 shows the latest servicing done on the Insured Vehicle at Century Motors (Singapore) on 11 June 2024 (red arrows). The servicing package included changing of engine oil, oil filter and gasket. The signal bulb was replaced and right front tyre was also patched (circled).

20. Mr Gazi mentioned that after the servicing was done he had not experienced any mechanical or electrical problems with the Insured Vehicle till the day of the incident. Mr Gazi also informed us that he has not done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.

Incident Scene Photographs

21. We were able to obtain from Mr Gazi photographs of the Insured Vehicle during and after the fire was extinguished. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Gazi. Our close examination of this photograph 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 12-15 below.

Photo 12 shows smoke emitting from the Insured Vehicle (arrowed) before the arrival of the SCDF.

Photo 13 shows firefighters attempting to put out the fire to the Insured Vehicle (arrowed).

Photo 14 shows SCDF conducting preliminary investigations post- incident (arrowed).

Photo 15 shows the engine compartment of the Insured Vehicle after firefighters were able to lift the cab post- incident. In general, the damages sustained to the engine compartment and the fire extinguisher water residue found on the burnt stretches of wirings (circled) had corresponded to the events that were related to us by Mr Gazi, which is the fire had started from the engine compartment.

22. 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 Gazi 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.

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 given that our examination of the available incident scene photographs did not reveal any unusual material(s)/object(s) found on the ground near 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.

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 around the centre portion of the engine compartment of the Insured Vehicle, which was earlier discussed in paragraph 10 above.

25. Our checks with both local and international bodies and associations had revealed that at the time of writing this report, there was a manufacturer recall on 7 September 2018 for the internal ignition switch spring. However it was rectified on 2 November 2019. See search result from LTA below.

Land Transport Authority

Vehicle Recall Details

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

Owner ID Type **Company**	*Owner ID* **635R**
Vehicle No. **GBH650H**	*Make/Model* **NISSAN/ CABSTAR 3.0 5M/T ABS 2DR 2WD EURO 5**
Engine No.: ZD30028826N	Chassis No.: JN1SC2F24Z0860949

Recall Details

Recall No.: R2018110604

Manufacturer Recall Date:
07 Sep 2018

Estimated Completion Year of Recall:
2019

Brief Description (As Provided by Motor Dealer):
An internal ignition switch spring may be manufactured with a surface defect at factory. The spring could fail due to fatigue after prolonged usage.

Date Rectified:
02 Nov 2019

Hotline Information:
TAN CHONG MOTOR SALES PTE LTD at 64694091

For more details, contact TAN CHONG MOTOR SALES PTE LTD

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 wirings around the engine compartment. The wirings were original factory wirings inside the engine compartment of the Insured Vehicle.

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)