



Your Ref: DHOM110096520909
Our Ref : CS/UOI19015641/N

9 September 2019

M/s United Overseas Insurance Limited
3 Anson Road #28-01
Springleaf Tower
Singapore 079909
(Claims Division)

**TECHNICAL INVESTIGATION REPORT OF SMOKE INCIDENT INVOLVING THE
INSURED VEHICLE GBB 6579Z ON 2 SEPTEMBER 2019**

1. We refer to your letter dated 3 September 2019 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of the smoke incident to the insured vehicle GBB 6579Z (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 5 September 2019 at the premises of Chan Ah Sun Car Service (herein referred to as "**CAS**") located at 10 Admiralty Street, #01-26 North Link Building, Singapore 757695.

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

Vehicle Registration No.	: GBB 6579Z
Make / Model	: NISSAN CABSTAR 3.0 5M/T ABS 2DR 2WD 3.4T
Chassis No	: JN1SC2F24Z0801134
Year of Registration	: October 2009
Mileage	: N.A (wiring affected)

5. The Insured Vehicle was observed not to have sustained any visible fire damage all around. See photos 1 – 5 below.



Photo 1 shows the front view of the Insured Vehicle at the time of our inspection. The damage to the Insured Vehicle was confined to its centre portion. The exterior body of the Insured Vehicle was relatively unaffected by the incident 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 incident except for the centre portion. The 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 incident except for the centre portion. The damage to the Insured Vehicle was confined to its centre portion. The 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 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 left portion of the engine compartment of the Insured Vehicle was significantly affected 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 smoke incident 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 marks (whitish marks) found as well as the rust that had developed on the underside of the passenger side engine access panel of the Insured Vehicle.
8. The whitish marks are a result of exposure to prolonged heat intensity. Rust would normally start to develop around these areas soon after 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 passenger side engine access panel of the Insured Vehicle is an indication that the engine compartment had sustained exposure to prolonged high heat intensity. See photos 6 & 7 below.



Photo 6 shows the whitish marks that were found on the underside of the passenger side engine access panel of the Insured Vehicle (circled). Such whitish marks are a result of exposure to prolonged heat intensity. Rust would also begin to develop on these areas soon after. 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

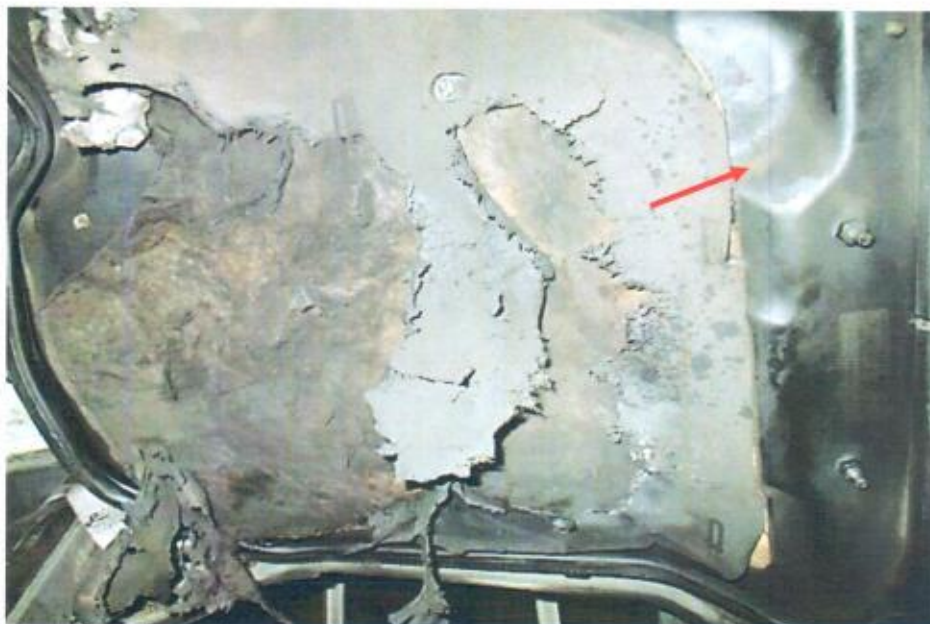


Photo 7 shows the rust that had developed around the underside of the passenger side engine access panel of the Insured Vehicle (arrowed) which is an indication that the incident to the Insured Vehicle had originated from the engine compartment.

9. Upon closer examination of the left centre portion of the Insured Vehicle which was where the smoke incident had likely started, we had found traces of greenish residue on the wirings leading from the alternator. 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 the smoke incident to the Insured Vehicle could have possibly been due to electrical in nature. See photos 8 - 10 below.



Photo 8 shows the wirings leading from the alternator 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 the smoke incident to the Insured Vehicle could have possibly been due to electrical in nature.

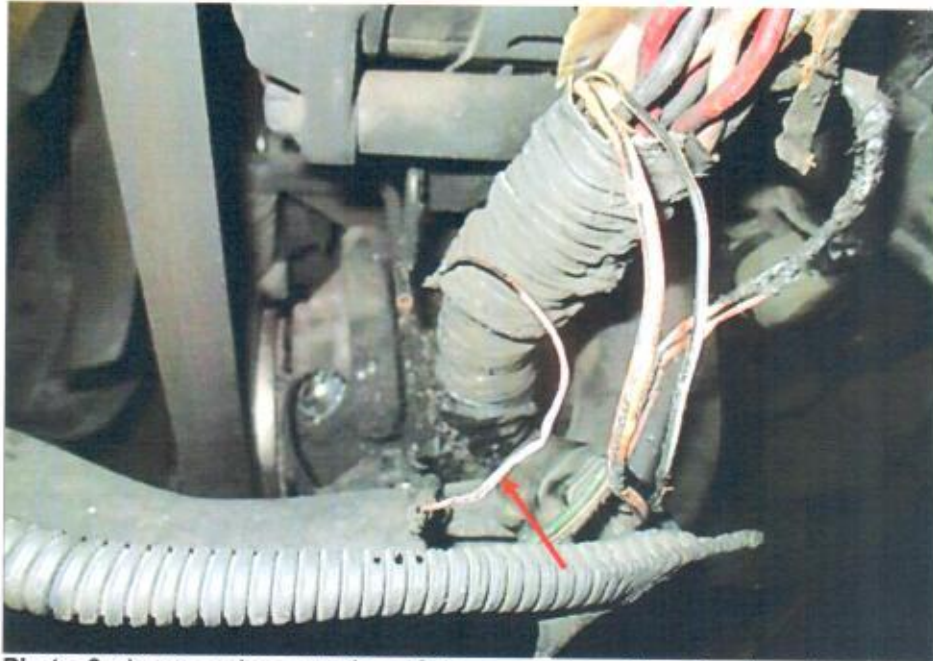


Photo 9 shows a close up view of the greenish residue found on the wirings leading from the alternator of the Insured Vehicle (arrowed). This seems to suggest the occurrence of an electrical short circuit.

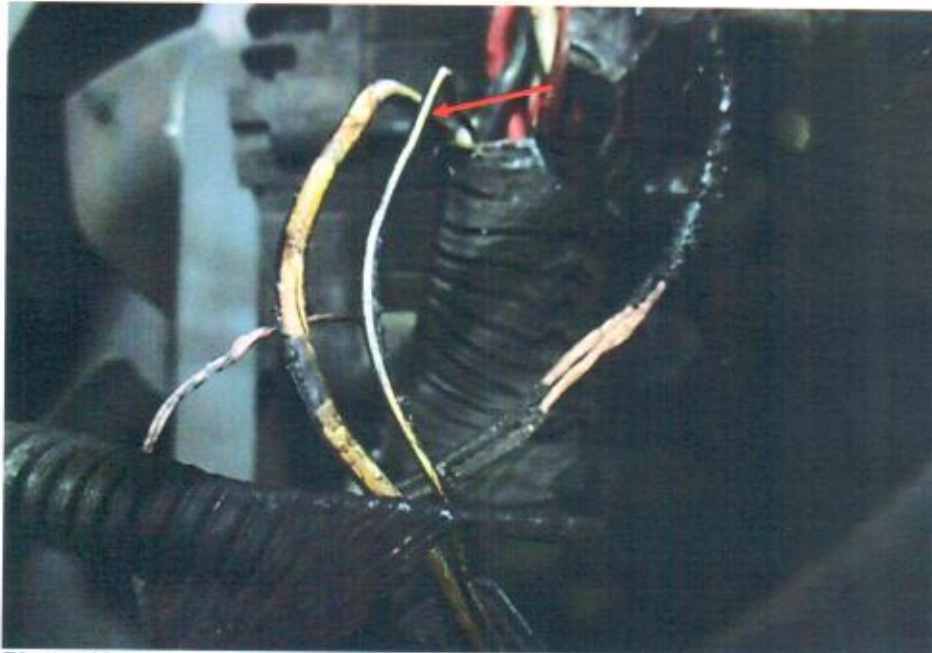
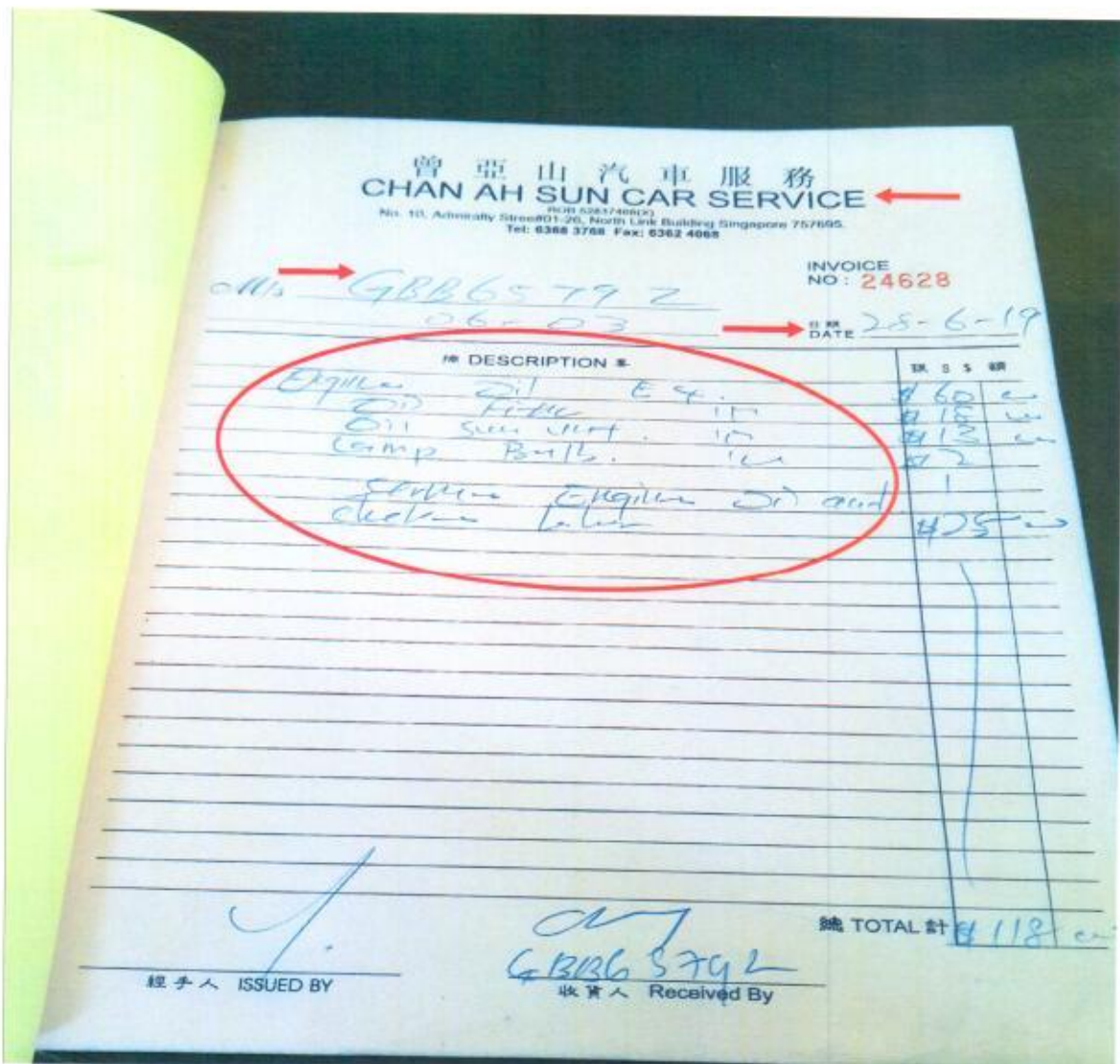


Photo 10 shows a close up view of the greenish residue found on the wirings leading from the alternator of the Insured Vehicle (arrowed). This seems to suggest the occurrence of an electrical short circuit.

10. From the Singapore Police Report No. E/20190903/2037 and Accident Statement which was made by Mr Lui Chee Meng (herein referred to as "**Mr Lui**"), we note that Mr Lui was first alerted to white smoke emitting from the Insured Vehicle.
11. We managed to speak to Mr Lui where we were able to gather information pertaining to the incident as well as the history of the Insured Vehicle.
12. The Insured Vehicle belongs to Chester Technologies (Far East) Pte. Ltd. (herein referred to as "**Chester**"). Mr Lui who is an employee of Chester is the main driver of the Insured Vehicle and is allowed to drive the Insured Vehicle home. According to Mr Lui, on the day of the incident, he had started driving the Insured Vehicle from his home located in Ang Mo Kio and made his way to Chester located at Admiralty Street to pick up another worker. He then proceeded to Changi to drop the worker for an assignment before making his way to Funan Shopping Mall to attend to a customer complaint.
13. He parked the Insured Vehicle at the carpark located in Basement 4 at 1100 hours. When he returned at about 1300 hours, he noticed white smoke emitting from the engine compartment of the Insured Vehicle. Mr Lui quickly opened both doors and lifted the passenger side engine access panel of the Insured Vehicle. He noticed that the white smoke was coming from the area around the Insured Vehicle's alternator. Mr Lui mentioned that after a few minutes the white smoke had dissipated. He then informed his office of the incident, after which he made towing arrangements.
14. The tow truck arrived an approximately 1 hour. Mr Lui hitched a ride with the towing personnel. The Insured Vehicle was towed to CAS. Mr Lui lodged a police report at the Bishan North Police Centre the next day on 3 September 2019 at 1214 hours followed by an insurance report later at Sin Ming VAC at 1447 hours.
15. Mr Lui 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 Mr Lui that the Insured Vehicle was purchased new by Chester in 2009. 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 Lui sends the Insured Vehicle for periodic servicing at CAS. The last servicing was approximately 3 months prior to the incident.
18. During the course of our investigations, we were also able to obtain from CAS, recent documents relating to the servicing done to the Insured Vehicle. The latest servicing was done on 28 June 2019, about 3 months before the incident occurred. The servicing package included changing of engine oil and oil filter. The oil sump bolt was replaced. Refer to Invoice 1 below.



曾亞山汽車服務
CHAN AH SUN CAR SERVICE
No. 10, Admiralty Street #01-20, North Link Building Singapore 757695
Tel: 6368 3768 Fax: 6362 4065

INVOICE NO: 24628
DATE: 28-6-19

Vehicle No: GBB65792
06-03

DESCRIPTION	QUANTITY	UNIT	PRICE
Engine Oil	4	L	\$60.00
Oil Filter	1	PC	\$15.00
Oil Sump Bolt	1	PC	\$13.00
Camp Bolt	1	PC	\$7.00
Servicing Engine Oil and Oil Filter	1	PC	\$13.00
Replace Oil Sump Bolt	1	PC	\$13.00
TOTAL			\$118.00

ISSUED BY: [Signature]
RECEIVED BY: [Signature]

Invoice 1 shows the latest servicing done on the Insured Vehicle at CAS on 28 June 2019 (red arrows). The servicing package included changing of engine oil and oil filter. The oil sump bolt was replaced (circled).

19. Mr Lui 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 Lui also informed us that ever since Chester purchased the Insured Vehicle, he has not done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.

Incident Scene Photographs

20. We were able to obtain from Mr Lui photos of the Insured Vehicle post- incident. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Lui. 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 parked. See photos 11 & 12 below.



Photo 11 shows the front portion of the Insured Vehicle at the incident location post- incident.



Photo 12 shows the engine compartment of the Insured Vehicle at the incident location post- incident. In general, the condition of the engine covered in soot had corresponded to the events that were related to us by Mr Lui, which is the smoke had emitted from the engine compartment.

21. Given the circumstances of the incident as reported, the possibility of the cause of the smoke incident to the Insured Vehicle being due to engine overheating would seem unlikely as Mr Lui 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, the incident had occurred after the engine of the Insured Vehicle was switched off for a period of time (about 2 hours).

22. The possibility of the smoke incident 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 parked. The location of where the Insured Vehicle was parked was also observed to be not at a secluded location.
23. The possibility of the smoke incident being due to electrical in nature would then seem more likely given that engine overheating and external factors would both seem unlikely. The smoke incident being due to electrical nature is also supported by the condition of the wirings that were found leading from the alternator of the Insured Vehicle, which was earlier discussed in paragraph 9 above.
24. 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 25 July 2013 for cracks which may occur at the priming pump connector insert, resulting in fuel seepage after the engine stops running. However it was rectified on 7 July 2014. 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: Company

Owner ID: 6645

Vehicle Details

Vehicle Registration number: G8B4579Z

Make: NISSAN

Vehicle Model: CABSTAR 3.0 34" ABS ZDR 2WD 3.4T

Engine No: ZD90021609K

Chassis No: J115C2F242D801134

Recall Details

1	Recall No:	R2013080004
	Manufacturer Recall Date:	25 Jul 2013
	Estimated Completion Year of Recall:	2015
	Brief Description (As Provided by Motor Dealer):	Crack may occur at priming pump connector insert, resulting in fuel leakage after engine stop running.
	Date Rectified:	07 Jul 2014
	For more details, contact TAN CHONG MOTOR SALES PTE LTD	
	Hotline Information:	Tan Chong Motor Sales at 64694091/2 Autolution Industrial Pte Ltd at 64729666 TC Autoline Pte Ltd at 62622212 Tan Chong Motor Sales at 63570755/7

Please do not use your browser's Back or Forward buttons as this may result in information loss.

Conclusion

25. Having investigated and technically analysed the damages of burnt nature to the Insured Vehicle, we are of the view that the cause of the smoke incident to the Insured Vehicle was of electrical in nature. For this particular case, the smoke incident had originated along the original factory fitted wirings leading from the alternator of the Insured Vehicle.
26. We did not find any evidence which had suggested that the cause of the smoke incident to the Insured Vehicle was due to poor maintenance and/or recurring electrical problem.
27. 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.



28. 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

AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA

Senior Technical Investigator

Technical Investigation & Reconstructionist (SAE-A)

DISCLAIMER OF LIABILITY TO THIRD PARTIES:- This Report is made solely for the use and benefit of the Client named on the front page of this Report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part, does so at his or her own risk.