

Your Ref: IVS23/0962  
Our Ref : CI/LIP23005581/N

9 June 2023

**M/s Liberty Insurance Pte. Ltd.**  
51 Club Street #03-00  
Liberty House  
Singapore 069428  
(Claims Division)

### **TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE SND 4183S ON 24 MAY 2023**

1. We refer to your letter dated 26 May 2023 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SND 4183S (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 2023 at the premises of Cartimes Autolution Pte. Ltd. (herein referred to as "**Cartimes**") located at 160 Sin Ming Drive, AutoCity, #02-04/05, Singapore 575722.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: SND 4183S
Make / Model	: HYUNDAI CN7 AVANTE 1.6 DOHC CVT S/R
Chassis No	: KMHLN41ETNU185415
Year of Registration	: May 2021
Mileage	: N.A. (battery melted)

5. 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 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 2** shows the general view of the left body 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 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.



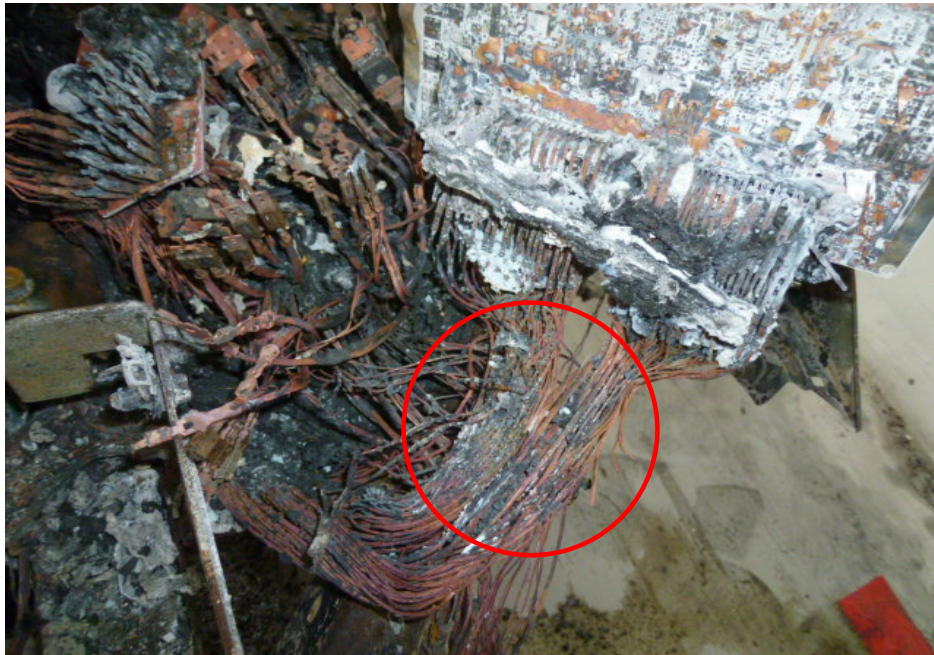
6. At the time of inspection of the Insured Vehicle, we did not find any additionally fitted electronic and/or electrical component(s) on the Insured Vehicle. There also appears to be no modification(s) fitted on the Insured Vehicle.

### **Investigation and Technical Analysis**

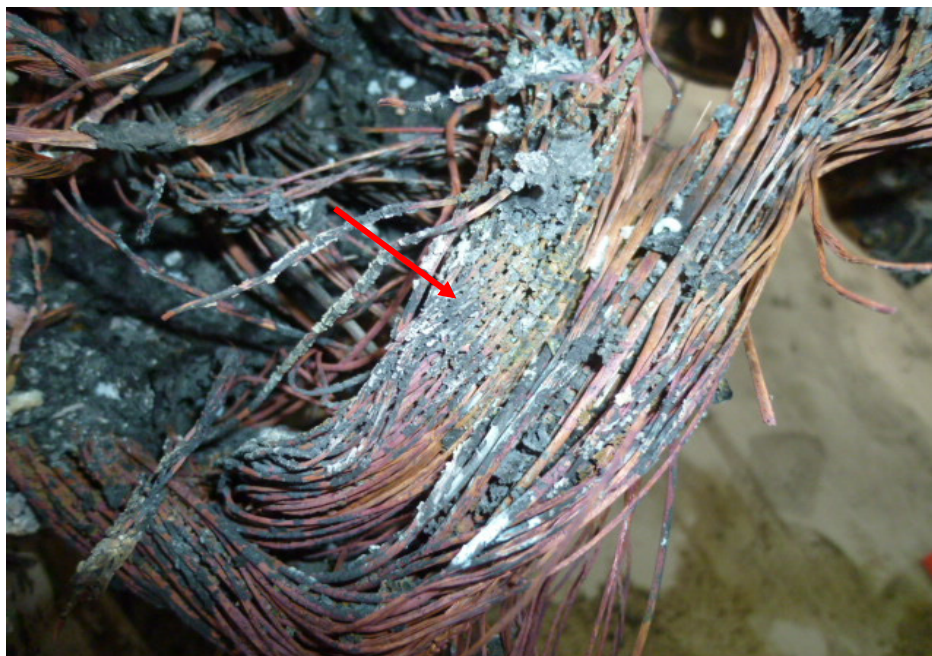
7. For this particular case, the fire appears to have originated within the engine compartment of the Insured Vehicle as this was the area where the damage of fire nature was most severe.
8. Upon closer examination of the left portion of the engine compartment, which was where the fire to the Insured Vehicle had likely started, we had found faint traces of greenish residue on several stretches of wirings. These wirings were original factory fitted wirings that were around the right portion of the engine compartment. 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 appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature. See photos 5 - 7 below.



**Photo 5** shows the factory fitted wirings around the left portion of the engine compartment which is near to the vicinity where the fire to the Insured Vehicle had likely started. We observed faint traces of greenish residue on some of these wirings (circled).



**Photo 6** shows a closer view of the wirings around the left portion of the engine compartment. We observed faint traces of greenish residue on some of these wirings (circled). This seems to suggest the occurrence of an electrical short circuit.



**Photo 7** shows a close up view of the faint greenish residue found on the wirings around the left portion of the engine compartment (arrowed). The presence of greenish residue indicates internal heating of copper wires, a sign of an electrical short circuit. The greenish residue is normally left behind from oxidation as a result of chemical reaction involving the copper wires.



9. From the Singapore Police Report No. F/20230525/7017 and Accident Statement, which was made by Mr Tan Wee Lee, Kevin (herein referred to as **"Mr Tan"**), we note that the fire to the Insured Vehicle had started at a time when he was driving. Mr Tan was first alerted of the fire when he stopped near a bus stop.
10. We managed to speak to Mr Tan where we were able to gather further information pertaining to the incident as well as to the history of the Insured Vehicle. He mentioned that on 24 May 2023 at around 1800 hours, he had left his office located at 194 Pandan Loop and was headed home. As he passed the Pasir Panjang Wholesale Centre, he saw smoke emitting from the right portion of the front bonnet. He decided to stop the Insured Vehicle at the nearest bus stop, switched off the engine and got out of the Insured Vehicle. He noticed the smoke had turned into a fire which soon engulfed the entire Insured Vehicle. He immediately called 995. He mentioned that 2 LTA enforcement bikes arrived at the incident scene and redirected traffic. The police were also present at the incident scene. A fire engine arrived in 20 minutes and took a considerable amount of time to extinguish the fire. Mr Tan was questioned by the police and his statement was taken. He also assisted the SCDF in their preliminary investigations. Mr Tan made towing arrangements for the Insured Vehicle. By the time the tow truck arrived, it was already night time. Mr Tan hitched a ride with the tow truck to Cartimes.
11. Mr Tan lodged a police report at the Ang Mo Kio Division HQ the next day, on 25 May 2023 at 1008 hours. An insurance report was made at Cartimes later that same day at 1441 hours.
12. With regard to the history of the Insured Vehicle, we were able to gather from Mr Tan that the Insured Vehicle was purchased second hand in March 2022. He is the owner and only driver of the Insured Vehicle.
13. Pertaining to the maintenance aspect, Mr Tan services the Insured Vehicle periodically.
14. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle. Mr Tan also informed us that ever since he 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**

15. We were able to obtain from Mr Tan several photographs of the Insured Vehicle which were taken after the fire had been extinguished. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Tan. 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 road where the Insured Vehicle was positioned. See photos 8 & 9 below.



**Photo 8** 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 Tan, which is the SCDF were present at the incident location (arrowed).





**Photo 9** shows the Insured Vehicle being prepped to be towed to Cartimes post-incident. The severity of damage of the frontal portion had corresponded to the events that were related to us by Mr Tan, which is the fire had started from the engine compartment of the Insured Vehicle (arrowed).

16. During the course of our investigations, we were also able to obtain from Mr Tan, a document relating to the last servicing of the Insured Vehicle at ARC Motorworks Pte. Ltd. on 13 May 2023. The servicing package included changing of engine oil, air filter and spark plug. The battery was also replaced. Refer to Invoice 1 below.





10 Kaki Bukit Road 2 #01-21 First East Center Singapore(417868)  
Company UEN: 202114174D  
Boon: 9838 9048

Customer Name: KEVIN  
Phone No. : 94311834

### Tax Invoice

Tax Invoice No: INV 3830  
Dated: May 13, 2023

Chassis / Car Plate No: SMD4183S Make and Model: HUNDAI AVANTE Mileage: 46532

S.No	Product	Qty	Price (SGD)	Unit	Discount	Amount (SGD)
1	L/MOLY	1	158.00		8.00 %	145.36
2	AIRCON FILTER	1	20.00			20.00
3	PLUG IRIIDIUM	1	160.00			160.00
4	BATTERY	1	185.00			185.00
Total (SGD)						510.36
GST 8% (SGD)						40.83
Total Due (SGD)						551.19

Thank you for your business !  
Any adjustment of amount or service description should be made within 7 days upon issue of invoice  
Please cross all cheque and make payable to "ARC MOTORWORKS PTE LTD"  
OR PAYNOW UEN: 202114174D

Scan to Paynow :




Notes:

**Invoice 1** shows the last servicing package done on the Insured Vehicle on 13 May 2023 at ARC Motorworks Pte. Ltd. (arrowed) which included changing of engine oil, air filter and spark plug. The battery was also replaced (circled).

17. 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.
18. 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 Tan had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle.

19. 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.
20. 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 in 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 8 above.
21. 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 1 August 2022 for the seatbelt pre-tensioner. However the recall was rectified. See search result from LTA below.



### Vehicle Recall Details

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

<i>Owner ID Type</i> <b>Singapore NRIC</b>	<i>Owner ID</i> <b>685I</b>
<i>Vehicle No.</i> <b>SND4183S</b>	<i>Make/Model</i> <b>HYUNDAI/ CN7 AVANTE 1.6 DOHC CVT S/R</b>
<i>Engine No.:</i> <b>G4FMMU016946</b>	<i>Chassis No.:</i> <b>KMHLN41ETNU185415</b>

### Recall Details



<b>Recall No.: R2022081171</b>	
Manufacturer Recall Date: <b>01 Aug 2022</b> ←	Estimated Completion Year of Recall: <b>2023</b>
Brief Description (As Provided by Motor Dealer):  The subject vehicles are equipped with driver/passenger pyrotechnic-type seatbelt pretensioners that may deploy abnormally during a crash. ←	Date Rectified: <b>13 Aug 2022</b> ←
Hotline Information:  ISMAL BIN TAIB at 64735588 RACHEL YOW at 64735588  For more details, contact KOMOCO MOTORS PTE LTD	

## **Conclusion**

22. 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 inside the engine compartment, somewhere around the left portion of the engine compartment. The wirings were original factory fitted wirings of the Insured Vehicle.
23. 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.
24. 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.
25. 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.

26. SCDF was activated to attend to the fire incident and a fire report pertaining to their findings will likely be forthcoming. We have applied for this fire report and will forward a copy of the report once it is made available to us.

**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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