

Your Ref : 3725638478SG  
Our Ref : CI/AIG20003358/N

5 March 2020

**M/s AIG Asia Pacific Insurance Pte. Ltd.**

78 Shenton Way #08-16  
CHARTIS Building  
Singapore 079120  
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE  
INSURED VEHICLE SKS 2850U ON 23 FEBRUARY 2020**

1. We refer to your letter dated 26 February 2020 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the Motor Vehicle SKS 2850U (herein referred to as “**Insured Vehicle**”) are set out below.

**Inspection of the Motor Vehicle**

3. The Insured Vehicle was physically inspected on 28 February 2020 at the premises of Cycle & Carriage Mercedes-Benz Authorised Service Centre (herein referred to as “**C&C**”) located at 188 Pandan Loop, Singapore 128378.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: SKS 2850U
Make / Model	: MERCEDES BENZ E 250 SEDAN (R17)
Chassis No	: WDD2120362B128592
Year of Registration	: April 2015
Mileage	: N.A (wiring affected)

5. The exterior front body and engine compartment of the Insured Vehicle sustained visible fire damage. This included its front windscreen and front bonnet.
6. The fire had resulted in minimal damage to the engine compartment of the Insured Vehicle. Some of the components inside the engine compartment were found to be severely burnt and/or melted as a result of the fire. The interior compartment was observed to have been relatively unaffected by the fire See photos 1 – 6 below.



**Photo 1** shows the general view of the rear body of the Insured Vehicle at the time of our inspection. The rear portion of the Insured Vehicle was observed to be unaffected by the fire.



**Photo 2** shows the general view of the right front portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle had sustained visible fire damage. This included its front windscreen and front bonnet.



**Photo 3** shows the general view of the left front portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle had sustained visible fire damage. This included its front windscreen and front bonnet.



**Photo 4** shows a closer view of the front windscreen of the Insured Vehicle at the time of our inspection. The front windscreen had sustained minimal fire damage.





**Photo 5** shows the interior compartment of the Insured Vehicle at the time of our inspection. The interior compartment of the Insured Vehicle was relatively unaffected by the fire.



**Photo 6** shows a general view of the engine compartment of the Insured Vehicle at the time of our inspection. Some of the components inside the engine compartment were found to be severely burnt and/or melted 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.

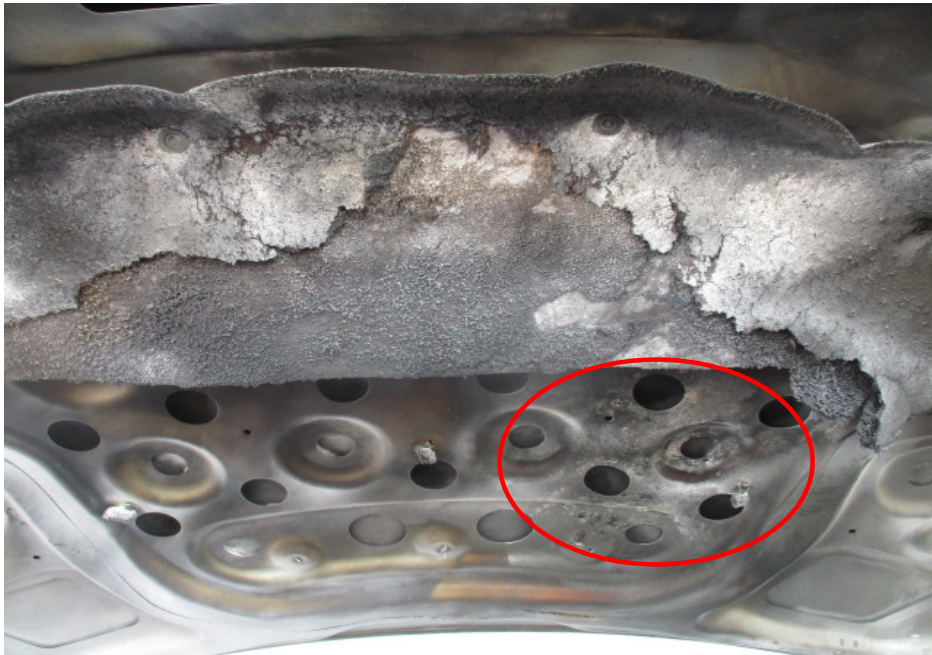
### **Investigation and Technical Analysis**

8. For this particular case, the fire appears to have originated within the engine compartment of the Insured Vehicle, somewhere around the rear centre portion of the engine compartment. This can be determined from the whitish burn marks on the rear 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 bottom centre 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 bottom centre portion, is an indication that the rear centre portion of the engine compartment had sustained exposure to prolonged high heat intensity. See photos 7 - 9 below.

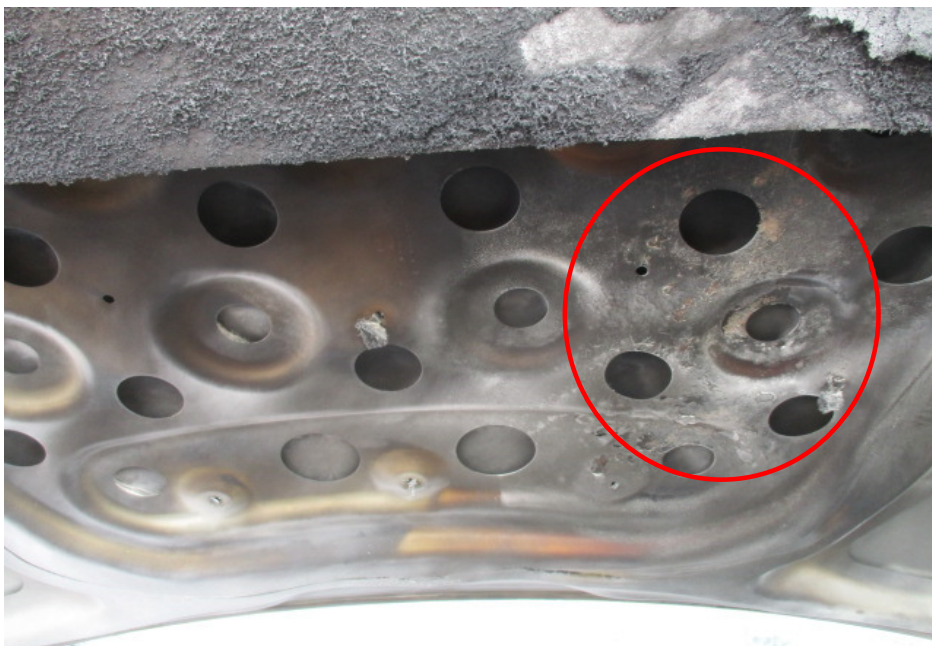


**Photo 7** shows the burn pattern and whitish burn marks that were found on the rear centre portion of the front bonnet of the Insured Vehicle (circled). Such whitish burn marks are a result of exposure to prolonged heat intensity, which may indicate where the fire had started. Rust would also begin to develop on these areas soon after the fire.



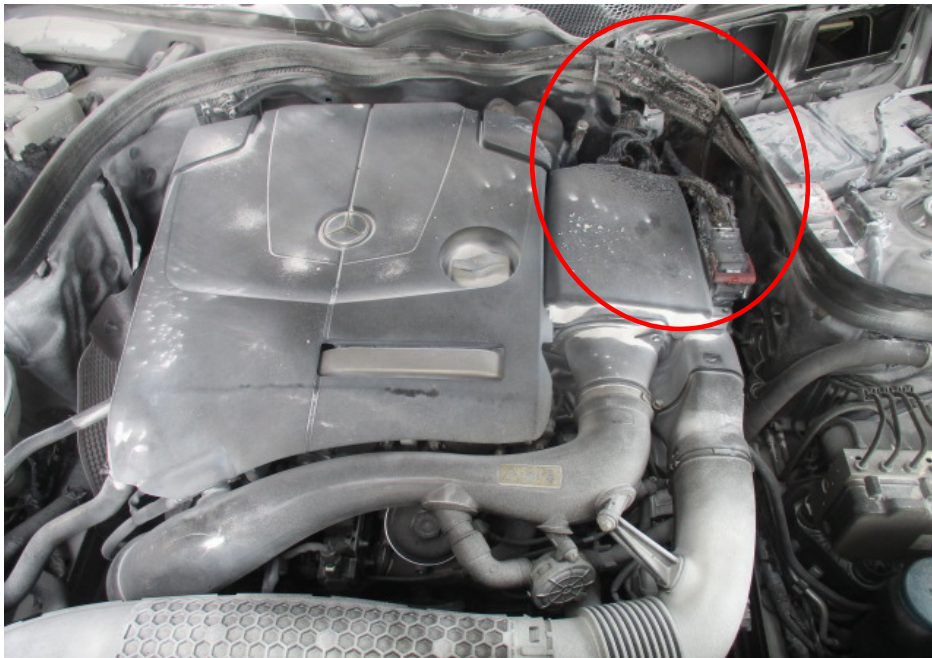


**Photo 8** shows the rust that had developed on the underside of the front bonnet, around the bottom centre portion (circled). The development of rust is an indication that this area was subjected to prolonged exposure to high heat intensity, which had caused the steel/metal material of the front bonnet to be exposed to natural environmental condition. Hence the fire to the Insured Vehicle can be determined to have originated towards the rear centre portion of the engine compartment.



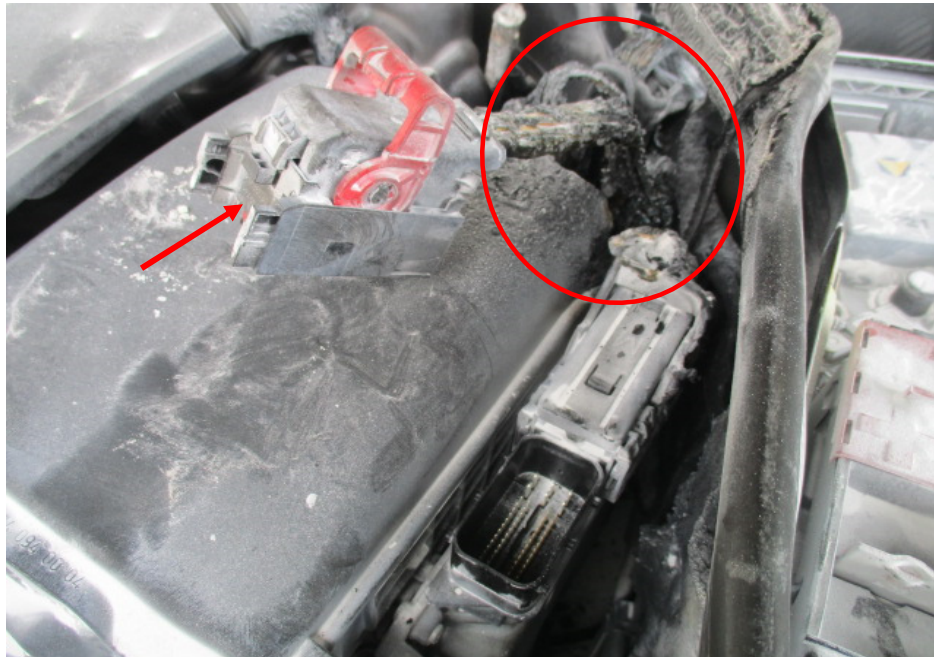
**Photo 9** shows a closer view of the rust that had developed on the underside of the front bonnet, around the bottom centre portion (circled).

10. Upon closer examination of the rear centre portion of the engine compartment which was where the fire to the Insured Vehicle had likely started, we had found several stretches of wirings with greenish residue. These wirings were original factory fitted wirings leading from the wiring harness of the Insured Vehicle. 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 10 – 14 below.



**Photo 10** shows the wirings around the rear centre portion of the engine compartment which is near to the vicinity where the fire to the Insured Vehicle had likely started. We observed greenish residue on the wirings leading from the wiring harness of the Insured Vehicle (circled). 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.



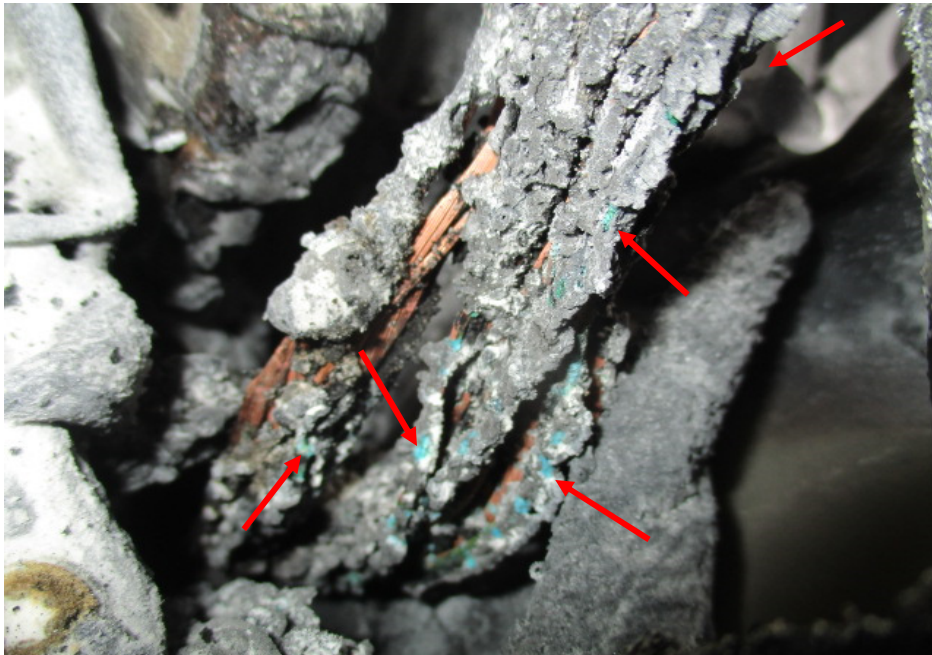


**Photo 11** shows a closer view of the disconnected wiring harness (arrowed). We observed greenish residue on some of the burnt wirings leading from the wiring harness (circled).



**Photo 12** shows a closer view of the greenish residue on the wirings leading from the wiring harness of the Insured Vehicle (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.





**Photo 13** shows a close up view of the greenish residue on the wirings leading from the disconnected wiring harness of the Insured Vehicle (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.



**Photo 14** shows a close up view of the greenish residue on the wirings leading from the disconnected wiring harness of the Insured Vehicle (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

11. From the Singapore Accident Statement, which was made by Mr Sockalingam Sugumaran (herein referred to as “**Mr Lingam**”), we note that the fire to the Insured Vehicle had started at a time when he was driving. Mr Lingam was first alerted of the fire when he saw white smoke emitting from the front bonnet of the Insured Vehicle.
12. We managed to speak to Mr Lingam 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 Lingam, at about 1755 hours on 23 February 2020 he had gone to visit the Sri Darma Muneeswaran Temple located at 17 Serangoon North Avenue 1. He left the temple to head home at 6 Kovan Close via Upper Serangoon Road. As the traffic light turned green at a traffic stop outside The Helping Hand, the engine of the Insured Vehicle failed to start despite the Eco Start/Stop feature being activated. Mr Lingam attempted to restart the engine 2 more times but to no avail.
14. He then alighted from the Insured Vehicle and proceeded to retrieve the ‘vehicle breakdown sign’ from the rear boot. As he was placing the sign, he noticed white smoke coming from the front bonnet. When he lifted up the front bonnet, he saw the centre portion of the wiper dash panel and rear centre portion of the engine compartment on fire. A taxi driver who witnessed the fire offered Mr Lingam a fire extinguisher but it lacked adequate pressure.
15. Mr Lingam mentioned that somebody from The Helping Hand got a second fire extinguisher and managed to put out the fire in less than 5 minutes. Mr Lingam called the SCDF. Firefighters arrived by 1805 hours. SCDF conducted a preliminary investigation and Mr Lingam’s statement was taken down by police officers at the incident scene. Mr Tan called an external towing company, BTS Towing Services to make towing arrangements after the preliminary investigation was over. The tow truck arrived after 2000 hours. The Insured Vehicle was first towed to Cycle & Carriage Eunoss Service Centre located at 330 Ubi Road 3.
16. The following day, on 24 February 2020 when Mr Lingam called the abovementioned service centre, he was informed that the Insured Vehicle needed to be towed to C & C. Towing arrangements were made and the Insured Vehicle was towed there later that day. Mr Lingam then made an insurance report at C&C at 1529 hours.



17. With regards to the history of the Insured Vehicle, we were able to gather from Mr Lingam that the Insured Vehicle was purchased new from Cycle & Carriage in 2015. He is the owner and only driver of the Insured Vehicle.
18. Pertaining to the maintenance aspect, Mr Lingam mentioned that he sends the Insured Vehicle for periodic servicing. He services the Insured Vehicle at Riverview Auto Services Pte. Ltd. which is located in Ang Mo Kio AutoPoint, 10 Ang Mo Kio Industrial Park 2A, #04-07, Singapore 568047. The last servicing was done on 17 August 2019. The servicing package included changing of engine oil and oil filter. The coolant, drain plug gasket, auto transmission fluid (ATF), rear disc pads, rear disc pad sensor and aircon filter were replaced. Refer to invoice 1 below.

**RIVERVIEW AUTO SERVICES PTE LTD** ←

10 AMK INDUSTRIAL PARK 2A, AMK AUTOPOINT  
#04-07/16 SINGAPORE 568047  
Tel: 6481 2025/ 6481 5797 Fax No: 6481 5715  
Email: service@riverviewauto.com.sg  
Website: www.riverviewauto.com.sg  
Co. Reg. 200800062E GST Reg. No. 200800062E

S. SUGUMARAN  
S KOVAN CLOSED  
S 548199  
S. SUGUMARAN  
Tel: 97426163

Tax Invoice: RA192177  
Invoice Date: 17/08/2019 ←  
Vehicle Num: SKS 2850 U ←  
Make/Model: MERCEDES W212 E250  
Mileage (Km): 121,508  
Advisor: FOO  
Technical Person: WEN  
Ref./Remark:  
Terms: CASH  
Currency: SGD

No.	Particular	Quantity	Unit Price	Amount \$
1	SERVICING PACKAGE FOR CONTINENTAL CAR			158.00
2	ENGINE OIL 8100 X-CESS 5W40 MOTUL FULLY SYNTHETIC	4 LTR(S)	0.00	
3	ENGINE OIL FILTER	1 PC(S)	0.00	
4	DRAIN PLUG GASKET	1 PC(S)	0.00	
*** ADDITIONAL PARTS :-				
5	ENGINE OIL 8100 X-CESS 5W40 MOTUL FULLY SYNTHETIC	1.5 LTR(S)	23.00	34.50
6	COOLANT	1 BOT(S)	26.50	26.50
7	AUTO TRANSMISSION FLUID MERCEDES BENZ 7G	2 LTR(S)	30.00	60.00
8	DISC PAD REAR	1 SET(S)	150.00	150.00
9	DISC PAD SENSOR REAR	1 PC(S)	12.00	12.00
10	CABIN FILTER	1 PC(S)	76.00	76.00
* LABOUR CHARGE :-				60.00
11	BRAKE PADS & WIRE SENSOR REAR REPLACE			
* REMARKS :- MAJOR SERVICING DONE @ 90K				

PAID  
17 AUG 2019  
BY: VISA

E. & O.E. Total \$ 577.00  
GST @ 7% \$ 40.39  
Amount Due \$ 617.39

Words: Six Hundred Seventeen And Cent Thirty-Nine Only

Customer's Signature/Co. Stamp for RIVERVIEW AUTO SERVICES PTE LTD ADVISOR'S SIGNATURE

**Invoice 1** shows the last servicing done on the Insured Vehicle at Riverview Auto Services Pte. Ltd. on 17 August 2019 (arrowed). The servicing package included changing of engine oil and oil filter. The coolant, drain plug gasket, auto transmission fluid (ATF), rear disc pads, rear disc pad sensor and aircon filter were replaced.

19. Mr Lingam 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. There was also no abnormal rise in temperature of the Insured Vehicle when he was driving the Insured Vehicle.
20. Mr Lingam mentioned that since the purchase of 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**

21. We were able to obtain photographs which were taken by Mr Lingam at the incident location. The photographs were taken after the fire to the Insured Vehicle was extinguished.
22. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Lingam. 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 15 - 17 below.



**Photo 15** shows the SCDF conducting preliminary investigations on the Insured Vehicle post- incident.





**Photo 16** shows the Insured Vehicle at the incident scene 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 Lingam. The burn pattern and concentration of fire extinguisher residue observed at the rear centre portion of the engine compartment (circled) is an indication that the fire had started from the rear centre portion of the engine compartment.



**Photo 17** shows the Insured Vehicle towed to Cycle & Carriage Eunios Service Centre located at 330 Ubi Road 3.

23. 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.
24. Given the circumstances of incident as reported, the possibility of the cause of fire to the Insured Vehicle being due to engine overheating would seem unlikely as Mr Lingam had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle.



25. 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.
26. 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 burnt wirings found in the engine compartment of the Insured Vehicle, which was earlier discussed in paragraph 10 above.
27. Our checks with both local and international bodies and associations revealed that at the time of writing this report, there is no manufacturer recall of 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 Singapore NRIC	Owner ID 221H
Vehicle No. SKS2850U	Make/Model MERCEDES BENZ/ E 250 SEDAN (R17)

Engine No.:  
27492030354229

Chassis No.:  
WDD2120362B128592


Recall Details:

No Recall Detail records


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## **Conclusion**

28. 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, leading from the wiring harness. The wirings were original factory wirings of the Insured Vehicle.
29. 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.
30. There was 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.
31. At the time of writing this report, there was also no manufacturer recall of similar make and model vehicle as the Insured Vehicle that could possibly be related to this particular 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)*

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