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

Your Ref: 2022 22007815
Our Ref : CS4/AIS22010890/N

11 November 2022

Allianz Insurance Singapore Pte. Ltd.
79 Robinson Road #09-01
Singapore 068897
(Claims Division)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE EP 8338E ON 30 OCTOBER 2022

1. We refer to your letter dated 1 November 2022 and the instructions therein.

2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle EP 8338E (herein referred to as **"Insured Vehicle"**) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 2 November 2022 at the premises of MOVA Automotive (herein referred to as **"MOVA"**) located at 15 Fan Yoong Rd, Singapore 629792.

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

Vehicle Registration No.	: EP 8338E
Make / Model	: MERCEDES BENZ GLS400 D 4MATIC AMG LINE AUTO
Chassis No	: WDC1679232A074155
Year of Registration	: July 2020
Mileage	: N.A. (battery melted)

5. The Insured Vehicle was noted to have sustained fire damage that was confined to its frontal portion. The entire engine compartment of the Insured Vehicle was observed to be severely burnt while the interior compartment was observed to be severely affected by the fire.

6. The fire had resulted in the body parts at the frontal portion of the Insured Vehicle to be burnt. This had included its front bumper, front bonnet, front support panel, front grille, front headlamps, front windscreen, front wheel rims, front fenders and front tyres, amongst others. See photos 1 – 6 below.

Photo 1 shows the general view of the rear portion of the Insured Vehicle at the time of our inspection. The rear portion of the Insured Vehicle was relatively unaffected by the fire.

Photo 2 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. The entire engine compartment of the Insured Vehicle was observed to be severely burnt while the interior compartment was observed to be seriously affected by the fire.

Photo 3 shows the closer view of the right front body 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 bumper, front bonnet, front support panel, front grille, front headlamps, front windscreen, front wheel rims, front fenders and front tyres, amongst others were amongst the body parts that were found to have been affected 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 was extensive.

Photo 5 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.

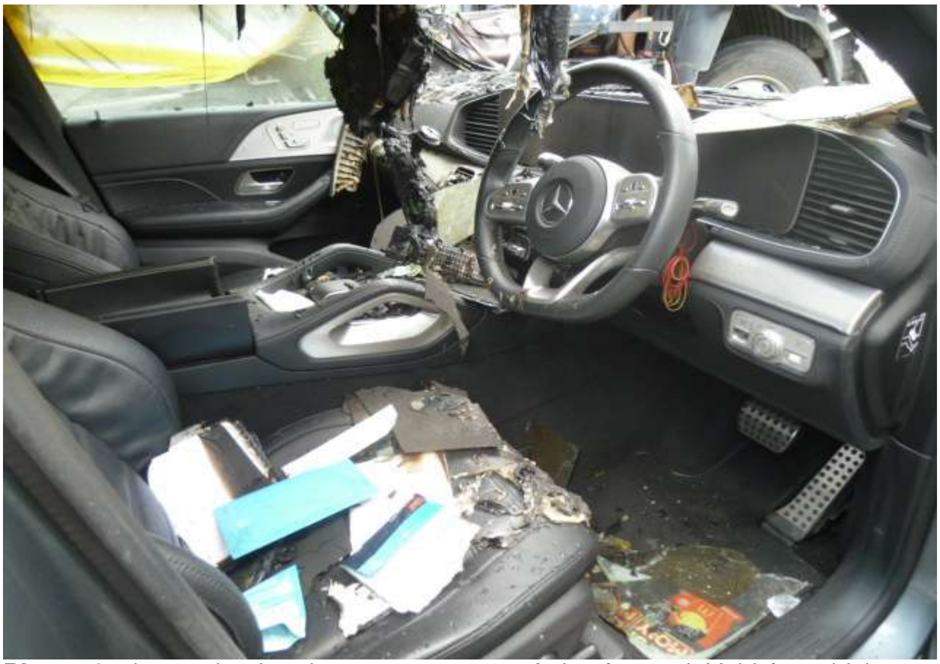


Photo 6 shows the interior compartment of the Insured Vehicle, which was seriously affected by the fire.

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 as this was the area where the damage of fire nature was most severe.

9. Upon closer examination of the rear left 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 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 7 – 11 below.

Photo 7 shows the wirings around the rear left 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 some of the burnt wirings of the Insured Vehicle (circled). The presence of greenish residue indicates internal heating of copper wires, a sign of an electrical short circuit occurring.

Photo 8 shows a closer view of the greenish residue on some of the burnt wirings of the Insured Vehicle (arrowed). 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 9 shows a closer view of the greenish residue on the wirings of the Insured Vehicle (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

Photo 10 shows a close up view of the greenish residue on the wirings of the Insured Vehicle (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

Photo 11 shows a close up view of the greenish residue on the wirings of the Insured Vehicle (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

10. From the Singapore Police Report Number T/20221030/2031 and Accident Statement, which was made by Mr Lee Sai Sing (herein referred to as **"Mr Lee"**), we note that the fire to the Insured Vehicle had started at a time after he stopped the Insured Vehicle by the side of the road after seeing smoke emitting from the front bonnet.

11. We managed to speak to Mr Lee where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.

12. According to Mr Lee, he had left his home located in Namly Drive on 30 October 2022 in the morning and dropped his daughter off at Newton before heading to Bukit Merah for breakfast. He was driving along Jalan Bukit Merah when he noticed smoke emitting from both sides of the front bonnet. He decided to turn left into Bukit Merah Lane 4, stopped the Insured Vehicle and switched off the engine. He lifted the front bonnet and saw flames in the engine compartment. He mentioned that the fire was burning through the engine cover of the Insured Vehicle. Mr Lee quickly grabbed his personal belongings and stepped away from the Insured Vehicle before calling 995.

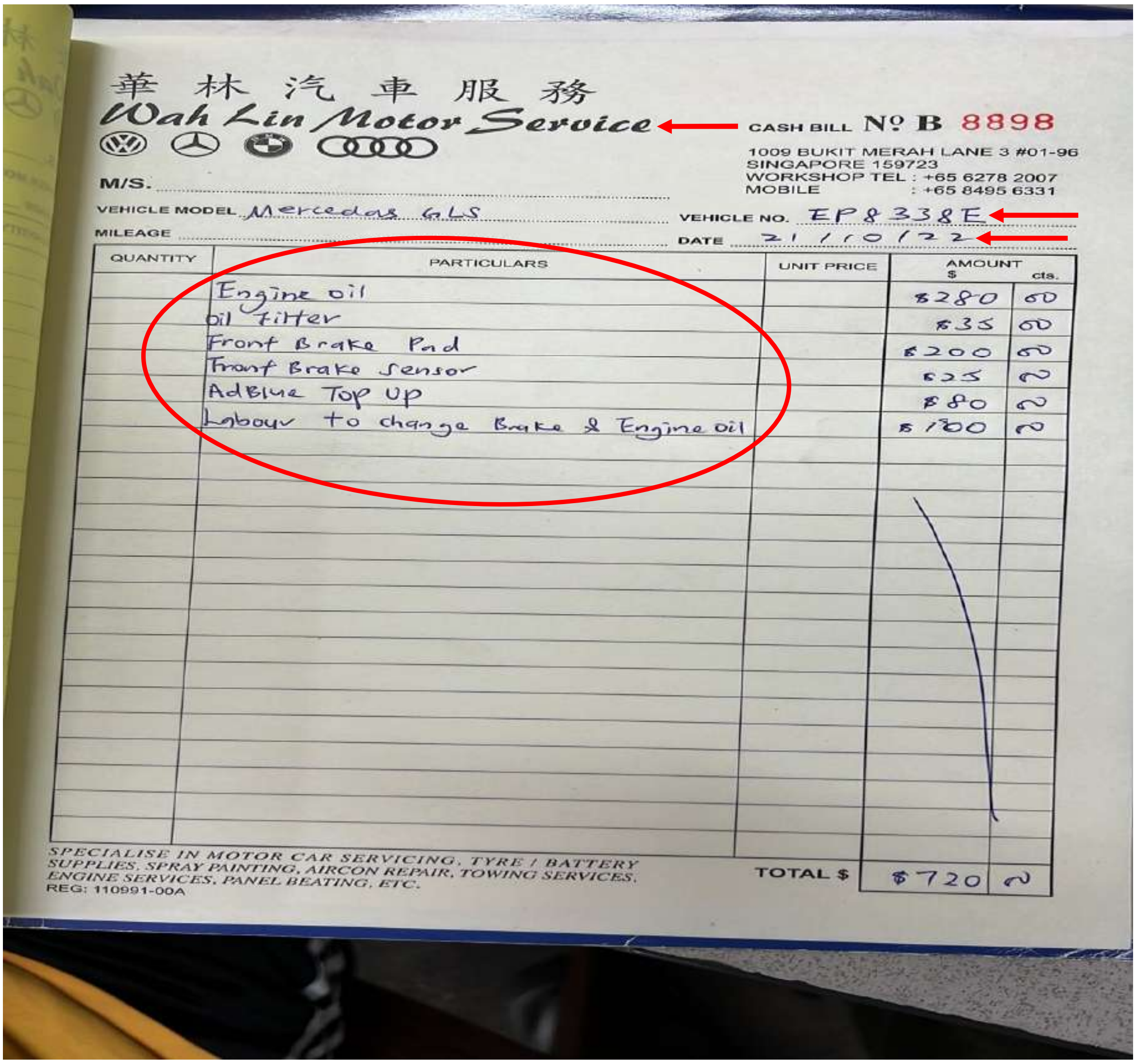
13. SCDF arrived within 5 minutes followed by the police. The fire was extinguished in less than 10 minutes but Mr Lee mentioned that firefighters continued to douse the engine compartment with water to lower the temperature of the Insured Vehicle.

14. The police did not take down Mr Lee's statement. Mr Lee assisted the SCDF in their preliminary investigations. He then called Allianz insurance and made towing arrangements. The tow truck arrived within half an hour and the Insured Vehicle was towed to MOVA. Mr Lee lodged a police report at the Bukit Timah Neighbourhood Police Centre later that day at 1438 hours. He made an insurance report at MOVA the following day, on 31 October 2022 at 1826 hours.

15. With regards to the history of the Insured Vehicle, we were able to gather from Mr Lee that the Insured Vehicle was purchased new from a parallel importer, Star Deals Gallery Pte. Ltd. in 2020. Mr Lee is the main driver of the Insured Vehicle. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle.

16. Pertaining to the maintenance aspect, Mr Lee sends the Insured Vehicle for periodic servicing at Wah Lin Motor Service (herein referred to as **"Wah Lin"**).

17. During the course of our investigations, we were able to obtain from Mr Lee, a document relating to the latest servicing records of the Insured Vehicle. The Insured Vehicle was last serviced on 21 October 2022, less than 10 days before the incident occurred. The servicing package had included the changing of engine oil and oil filter. The front brake pads and front brake sensor were also replaced. The Adblue solution was also topped up. Refer to Invoice 1 below.



華林汽車服務

Wah Lin Motor Service

CASH BILL Nº B 8898

1009 BUKIT MERAH LANE 3 #01-96
SINGAPORE 159723
WORKSHOP TEL : +65 6278 2007
MOBILE : +65 8495 6331

M/S.

VEHICLE MODEL Mercedas GLS

VEHICLE NO. EP8338E

MILEAGE

DATE 21/10/22

QUANTITY	PARTICULARS	UNIT PRICE	AMOUNT $	cts.
	Engine oil		$280	00
	Oil filter		$35	00
	Front Brake Pad		$200	00
	Front Brake Sensor		$25	00
	AdBlue Top Up		$80	00
	Labour to change Brake & Engine oil		$100	00
		TOTAL $	$720	00

SPECIALISE IN MOTOR CAR SERVICING, TYRE / BATTERY SUPPLIES, SPRAY PAINTING, AIRCON REPAIR, TOWING SERVICES, ENGINE SERVICES, PANEL BEATING, ETC.
REG: 110991-00A

Invoice 1 shows the last servicing package done on the Insured Vehicle on 21 October 2022 at Wah Lin Motor Service (arrowed) which included the changing of engine oil and oil filter. The front brake pads and front brake sensor were also replaced. The Adblue solution was also topped up (circled).

18. Mr Lee mentioned that there were neither warning lights displayed nor was there an abnormal rise in temperature of the Insured Vehicle when he was driving the Insured Vehicle on the day of the incident.

19. Mr Lee also mentioned that since driving 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 Lee, photos of the Insured Vehicle which were taken during and after the fire was put out. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Lee. 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 positioned. See photos 12 - 14 below.

Photo 12 shows the Insured Vehicle on fire before the arrival of the SCDF. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Lee which is the fire had started from the engine compartment of the Insured Vehicle (arrowed).

Photo 13 shows the arrival of the SCDF at the incident scene. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Lee which is the SCDF had responded to the incident (arrowed).

Photo 14 shows the SCDF dousing the engine compartment with water after putting out the fire to the Insured Vehicle. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Lee which is the SCDF were attempting to lower the temperature of the Insured Vehicle after the fire was extinguished (arrowed).

21. 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.

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 Lee 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 Lee 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.

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 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 that were found in the engine compartment of the Insured Vehicle, which was earlier discussed in paragraph 9 above.

25. 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.

Land Transport Authority

Vehicle Recall Details

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

Owner ID Type **Singapore NRIC**	*Owner ID* **692F**
Vehicle No. **EP8338E**	*Make/Model* **MERCEDES BENZ/ GLS400 D 4MATIC AMG LINE AUTO**
Engine No.: 65692980062339	Chassis No.: WDC1679232A074155
Recall Details: No Recall Detail records	

Conclusion

26. Having investigated and technically analysed the damages 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. The wirings were original factory wirings 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.

30. SCDF was activated to attend to the fire incident and a fire report pertaining to their findings will likely be forth coming. 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)