



51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108

Your Ref: VA1/GA105225/1
Our Ref :CS/ASM19001580/Z

31st January 2019

M/s AXA Insurance (Singapore) Pte Ltd
8 Shenton Way #24-01, AXA Tower,
Singapore 068811
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE SGG 7507P ON 21st January 2019**

1. We refer to your letter dated 23rd January 2019 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SGG 7507P (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 24th January 2019 at the premises of SHL Automobile Resources, Blk 1005 Bukit Merah Lane 2, #01-16, Singapore 159761.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: SGG 7507P
Make / Model	: Mercedes-Benz
Chassis No	: WDB22000632A480740
Year of Registration	: 2006 (May)
Mileage	: N.A (Electronic System Damage)
5. The Insured Vehicle was noted to have sustained fire damages to its front portion. The entire engine compartment of the Insured Vehicle was observed to be severely burnt by the fire.
6. The fire had resulted in the body parts at the front portion of the Insured Vehicle to be burnt. This had included its front bonnet and several parts of the engine components especially at the front left of the engine. Except for the exterior rear, interior, exterior rear left & exterior rear right portion was not affected by the fire. See photo 1 – 4 below.



Photo 1 shows the general view of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its front bonnet and entire engine parts were amongst the body parts that were found to have been affected as a result of the fire.



Photo 2 shows the general view of the front centre portion of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its front bonnet and entire engine parts were amongst the body parts that were found to have been affected as a result of the fire.



Photo 3 shows the topside bonnet of the Insured Vehicle at the time of our inspection. It was observed to sustain with burnt marks.



Photo 4 shows the interior compartment of the Insured Vehicle, which was observed to be unaffected by the fire incident.

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 front left of the engine compartment. This can be determined from the burn pattern and the high heat intensity burn marks (whitish burn marks) found on the front bonnet of the Insured Vehicle, at both its top and under side.
9. These (whitish) burn marks are a result of exposure to prolong 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. See photo 5 below.



Photo 5 shows the burn pattern and whitish burn marks that were found on the topside of the front bonnet of the Insured Vehicle. Such whitish burn marks are a result of exposure to prolong heat intensity, which may indicate where the fire had started. Rust would also begin to develop on these areas soon after the fire.

10. Upon closer examination of the area around the front left of the engine compartment, which was in the immediate vicinity of where the fire to the Insured Vehicle had likely started, we had found several stretches of wiring burnt internally to its bare copper state. There's also traces of greenish residue as evidence to show that such condition normally indicate internal heating of copper wires which is a sign of an electrical short circuit occurring. This would then appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature. See photo 6 & 7 below.

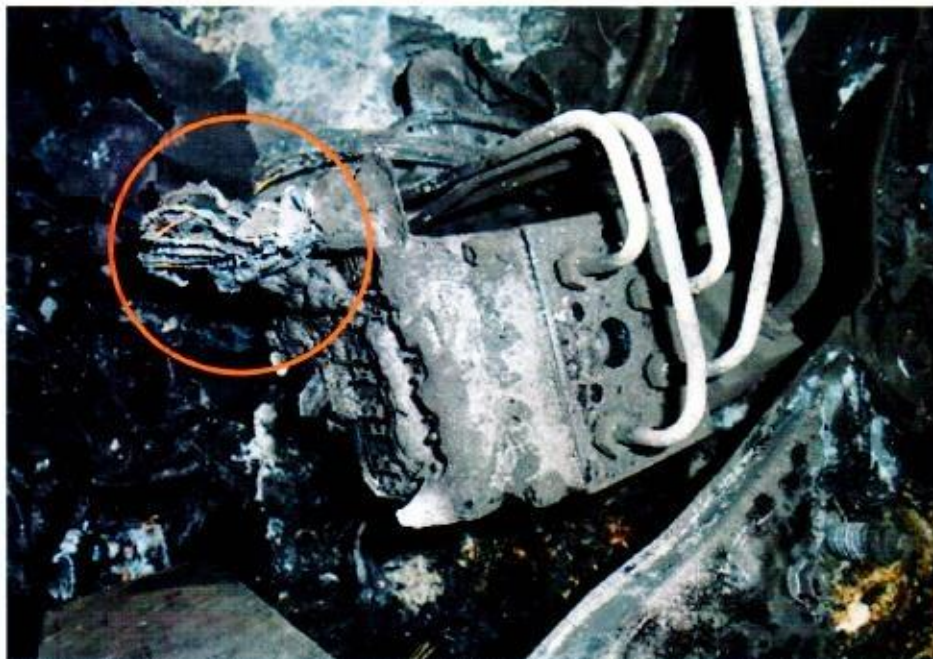


Photo 6 shows a closer view of the ABS motor pump wirings around the front left of the engine compartment, which was in the immediate vicinity where the fire to the Insured Vehicle had likely started.

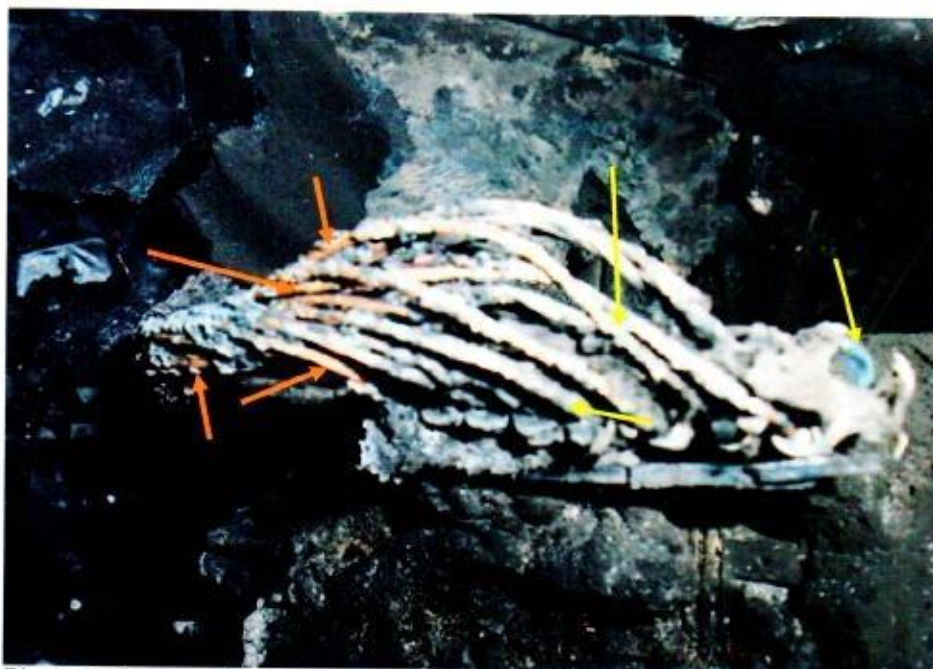


Photo 7 shows a closer view of the ABS motor pump wirings (red arrow) which were found to have been burnt internally to its bare copper state, suggesting occurrence of an electrical short circuit. These wirings were observed to be greenish (yellow arrow) believe to be the focal point of the fire ignition.

11. From the Singapore Accident Statement report, which was made by Ms Ong Bee Luan Ivy (herein referred to as "**Ms Ivy**") who was the last person driving the Insured Vehicle. Ms Ivy had parked the Insured Vehicle at about 1805hrs at an open car park opposite of Blk 20 Holland Drive to attend a meeting at a place nearby the area. She had come back to the Insured Vehicle at about 1930hrs after her meeting ended. She drove the Insured Vehicle out from the open carpark when she smell something burning. She had decided to turn back into the carpark and call AA tow truck to tow the Insured Vehicle to the workshop.
12. She did make a U-turn and enter into the carpark. Just after the carpark barrier, the Insured Vehicle engine stalled by itself. By then, smoke was seen emitted out from the front portion of the Insured Vehicle. She immediately abandoned the Insured Vehicle to a safe distance and call 995 for assistance. It was about 1948hrs. While waiting for SCDF arrival, the small fire from the front engine grew bigger eventually. SCDF came at about 2000hrs at the fire scene to extinguish the fire.

13. We note that the fire to the Insured Vehicle had started when it was in motion. It was running smoothly to a few destinations before arriving at Holland drive open carpark.
14. We had arranged for a face to face interview session with Ms Ivy in her office at Toa Payoh Hub, East Wing 27th Floor on 25th January 2019 where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
15. Ms Ivy is currently working with National Environment Agency holding a Director's position directing the Hawker Centre Division; she has been in the service since the last 30 years. She is the registered owner of the Insured Vehicle & also the main driver. Ms Ivy drives the Insured Vehicle mainly to office & for transportation purposes.
16. According to Ms Ivy, on 21st January 2019 at about 1805hrs, she had parked the Insured Vehicle reversed parked inside an open space parking lot no. 179, in an open carpark opposite blk 20, Holland Drive. After her meeting appointment at a nearby place around the vicinity, she then drove off out of the carpark for home. She smell of burning smell while driving the Insured Vehicle and decided to turn back into the carpark to arrange for AA to tow the Insured Vehicle to the workshop. She did make a U-turn back into the carpark but the Insured Vehicle engine stalled upon entering the carpark barrier. Smoke was seen emitted out from the front engine portion. She quickly abandoned the Insured Vehicle to a safe distance. The smoke soon ignites into small fire seen from under the engine compartment. Ms Ivy summoned for SCDF for assistance at about 1948hrs. By then the small fire engulf into bigger fire.
17. SCDF fire fighters & SPF officer came soon after. The fire was extinguished by SCDF fire engines & officers. She was interviewed by both investigation officers for facts of fire case.
18. Ms Ivy then contacted AA towing assistance. The Insured Vehicle was eventually arranged to be towed from the incident location to SHL Automobile Resources, Blk 1005 Bukit Merah Lane 2, #01-16, Singapore 159761 on the same day.

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19. We were able to gather from Ms Ivy that the Insured Vehicle was purchased brand new in 2006. At first Ms Ivy's husband is the registered owner of the Insured Vehicle. The ownership was transferred to Ms Ivy as a present from her husband. Prior to the fire incident Ms Ivy was driving the Insured Vehicle. To the best of her recollection, there has not been any major mechanical and/or electrical problem with the Insured Vehicle apart from the usual wear and tear that a vehicle would experience.

20. Regarding the maintenance aspect, Ms Ivy informed us that the last servicing carried out on the Insured Vehicle was on 30th October 2018 at SHL Automobile Resources, Blk 1005 Bukit Merah Lane 2, #01-16, Singapore 159761. She was able to provide me with a document relating to this servicing. Our review of this document revealed that the recorded mileage of the Insured Vehicle during this servicing was 113211km. The engine oil, oil filter, standard scope servicing and fuel additives were replaced during this servicing. See document below relating to this servicing which was provided to me by Ms Ivy. See below service invoice.

SHL AUTOMOBILE RESOURCES

88 VIOX Blvd March Lane 2 #01-70 Singapore 120721
Tel: 62716129, 62704282 Fax: 63771501

INVOICE

No. B **8294**

DATE: **30.10.2018**

VEHICLE NO: **SG 97507P**
2015/2016 Mitsubishi S400

M/s Mdm Jey 91543935 (c) 66906500

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
2	front new tires (Michelin)		4670
1	front oil filter		420
1	full synthetic engine oil (German)		420
1	air filter (German)		420
1	brake pad (German)		430
1	brake disc (German)		480
1	brake fluid (German)		420
1	brake oil (German)		420
1	brake hose (German)		420
1	brake line (German)		420
1	brake master cylinder (German)		420
1	brake booster (German)		420
1	brake pedal (German)		420
1	brake cable (German)		420
1	brake master cylinder (German)		420
1	brake booster (German)		420
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1	brake master cylinder (German)		420
1	brake booster (German)		420
1	brake pedal (German)		420
1	brake cable (German)		420
1	brake master cylinder (German)		420

Latest servicing invoice submitted for our review.

21. Ms Ivy also informed me that there was no modification(s) and/or additional electronic or electrical component(s) fitted on the Insured Vehicle.
22. To the best of her knowledge, no other motor vehicle or property was affected by the fire incident.
23. We visited the fire incident location on 28th January 2019 which was located at Holland Drive opposite Blk 20 open space carpark with the information & photograph that we had gathered during our conversation with Ms Ivy as references.
24. When driving into the open car-park driveway of Holland Drive opposite Blk 20 open carpark, the fire incident took place right after the entrance of the barrier. At the time of the fire incident, the Insured Vehicle engine was stalled right after the entrance barrier. Further observations on the ground, we found burnt marks/ burnt residual on the tar road surface. This reveals that there's evidence that fire incident happen at the said spot. See photo 8 – 11 below.



Photo 8 shows the general view of Blk 20 Holland Drive where the open carpark was located opposite this HDB block.



Photo 9 shows the general view of the carpark entrance opposite of Blk 20 Holland Drive. Arrow shows where the Insured Vehicle last position before it caught fire.



Photo 10 shows the general view of the carpark entrance opposite of Blk 20 Holland Drive. Arrow shows where the Insured Vehicle last position before it caught fire.



Photo 11 shows the general view of the road that she uses for make a U-turn to enter back into the carpark prior the fire incident.

25. We were able to gather photograph that were submitted by Ms Ivy on the day of the incident. The photographs were taken at the time of the fire incident.
26. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Ms Ivy. 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 location where the Insured Vehicle was last positioned. See photo 12 below.

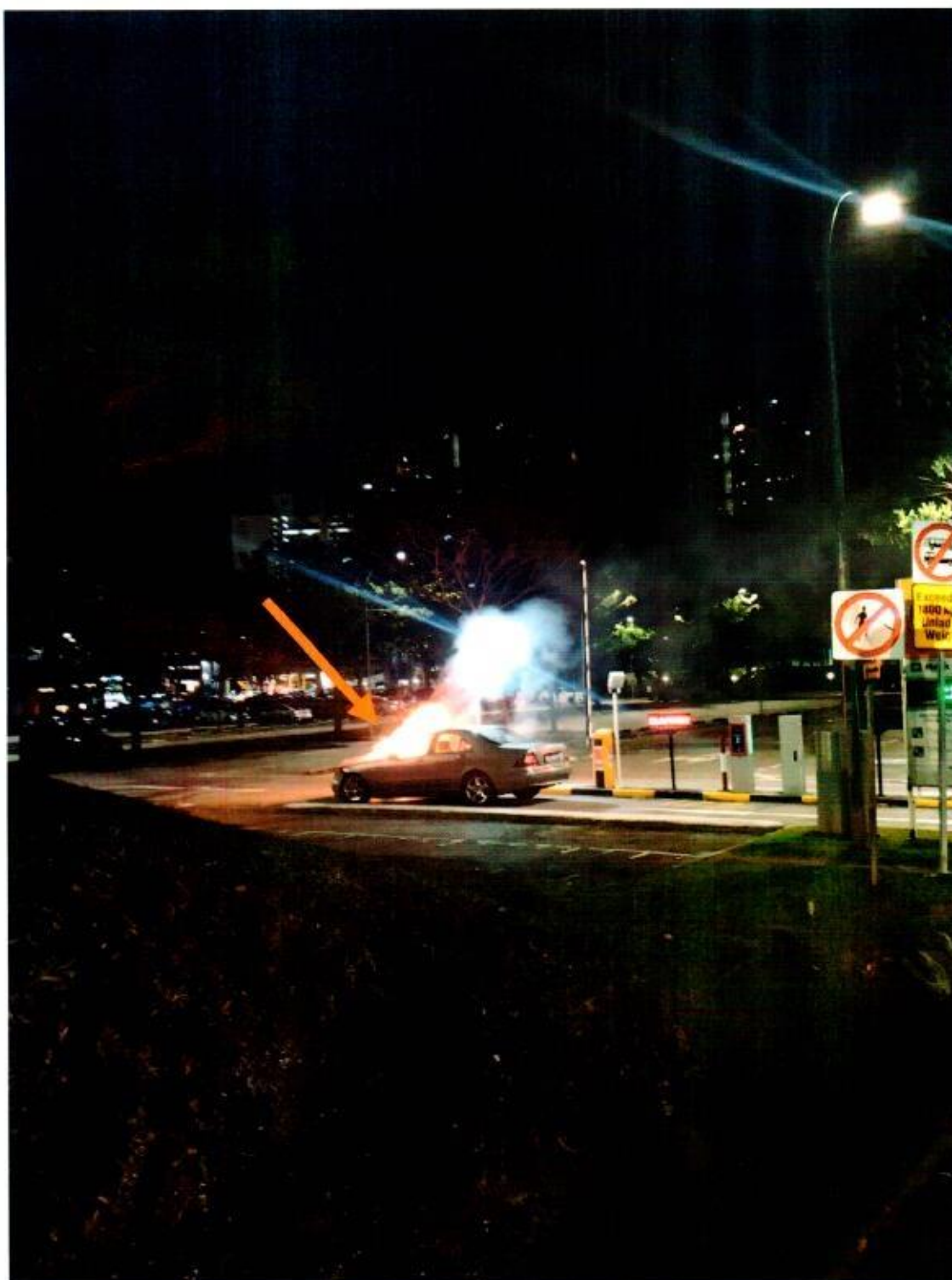


Photo 12 shows the Insured Vehicle at the fire incident scene. There appears to be no abnormal foreign material(s) and/or object(s) found on the ground in the immediate area where the Insured Vehicle was located. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Ms Ivy.

27. 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 there were neither warning lights displayed nor was there an abnormal rise in temperature throughout the period he was driving the Motor Vehicle.
28. The possibility of the fire being due to external factor (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.
29. Basing on the situation, the engine of the Insured Vehicle was still running at the material time of incident, therefore electrical current were flowing within the electrical system for operational purposes. Several electrical and/or electronic components on the Insured Vehicle would require current to remain in operation and/or in idling mode. This would also include ABS (Anti-Locking Braking System) would require electrical power to perform its operations. As we found evidence on the ABS wiring which leave a greenish residue as a result of short circuit on the electrical wiring.
30. The possibility of the fire being due to electrical in nature would then seem more likely with supporting evidence explained in paragraph 29 given that engine overheating and external factor would both seem unlikely. The fire being due to electrical nature is also supported by the condition of the wirings of the Insured Vehicle, which was earlier discussed in paragraph 10 above.
31. 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 Vehicle Call record 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:	Singapore NRIC
Owner ID:	65218

Vehicle Details

Vehicle Registration number:	SGG7507P
Make:	MERCEDES BENZ
Vehicle Model:	S280
Engine No.:	11292231997890
Chassis No.:	WDB2200632A480740

Recall Details

No Recall Detail records

Conclusion

32. 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 wiring inside the engine compartment, somewhere around the ABS motor pump section of the engine. The wirings were likely to be from the original manufacturer's installation wire harness.
33. 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.
34. 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.
35. 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.



Rohaizal A. Rahim
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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