

Your Ref: 6723766784SG
Our Ref : CS4/AIG21012722/D

21 December 2021

AIG Asia Pacific Insurance Pte Ltd

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

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE SJG 2020Z ON 21 OCTOBER 2021

1. I refer to your request dated 14 December 2021.
2. My analysis, comments and opinions with respect to the cause of fire to the insured vehicle SJG 2020Z (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 15 December 2021 at the premises of M/s Cycle & Carriage Industries Pte Ltd, 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.	: SJG 2020Z
Make / Model	: Mercedes Benz A180
Chassis No	: W1K1771842J209568
Year of Registration	: 2020 (October)
Mileage	: N.A (wiring affected)

5. No visible damage of fire nature was observed to the exterior body of the Insured Vehicle. The rear boot compartment and engine compartment were also found to be without any fire damage.
6. Upon checking the interior compartment of the Insured Vehicle, I had found fire damage that was confined to the centre console area of the interior compartment. The dashboard, centre console, arm rest console, steering wheel, front left passenger seat, driver's seat, aircon ducts, aircon control panel, carpet, trims, upholstery, wirings, airbag control module and front windscreen were amongst the parts that were observed to be burnt and/or had sustained heat/smoke damage. See photo 1 – 6 below.



Photo 1 shows a general view of the rear right body of the Insured Vehicle at the time of my inspection. I did not observe any damage of fire nature to the exterior body of the Insured Vehicle. Its rear boot compartment and engine compartment were also found to be without any damage of fire nature.



Photo 2 shows a general view of the left body of the Insured Vehicle at the time of my inspection. I did not observe any damage of fire nature to the exterior body of the Insured Vehicle. Its rear boot compartment and engine compartment were also found to be without any damage of fire nature.



Photo 3 shows a general view of the frontal body and engine compartment of the Insured Vehicle at the time of my inspection. I did not observe any damage of fire nature to the exterior body of the Insured Vehicle. The engine compartment was also observed to be without any damage of fire nature.



Photo 4 shows the interior compartment of the Insured Vehicle. Fire damage that was confined to the centre console area of the interior compartment was observed. The front dashboard, centre console, arm rest console, carpet, trims, upholstery, wirings and steering wheel were amongst the parts that were observed to be burnt and/or had sustained heat/smoke damage.



Photo 5 shows a general view of some of the burnt/damaged carpet, trims and aircon ducts that were removed from the interior compartment of the Insured Vehicle prior to my inspection.



Photo 6 shows a general view of some of the burnt/damaged parts that were removed from the interior compartment of the Insured Vehicle prior to my inspection. These parts had included carpet, control panels, air ducts and trims amongst others.

7. The Insured Vehicle was not fitted with any modification(s) at the time of my inspection. There was also no electronic and/or electrical component(s) additionally fitted on the Insured Vehicle.

Circumstance of Incident

8. From the Singapore Accident Statement, which was made by one Tan Yen Seng (herein referred to as "**Mr Tan**"), I note that the fire to the Insured Vehicle had started at a time when he was driving the Insured Vehicle. As per the circumstance described in Mr Tan's Singapore Accident Statement, on 21 October 2021 at about 1830hrs, he was driving the Insured Vehicle along ECP when he heard a pop sound. He then turned into Bayshore and started to smell some burning smell but thought the smell was from the outside. When he reached his home, he saw smoke and flame coming out from the aircon vents and centre console. He quickly off the engine and with the help of some of his neighbours, he managed to put out the fire.
9. Further details with regard to the events leading up to the fire were gathered through telephone conversation when I spoke to Mr Tan on 16 December 2021.
10. According to Mr Tan, on 21 October 2021, he left his office at Tai Seng area heading towards his home at 81 Lucky Heights, off Upper East Coast Road. It would usually take about 20 mins from his office to his home, driving the Insured Vehicle via the route of KPE, ECP and exiting at Bayshore Road. Mr Tan recalls that the Insured Vehicle was operating normally during his drive.
11. Along the exit of KPE towards ECP (Changi Airport), Mr Tan heard a pop sound. Shortly after, whilst along ECP, he smelt rubber burning smell, which he thought was coming from the outside. Mr Tan continued driving the Insured Vehicle and about 10 mins later, when he reached the exit to Bayshore Road, he realized that there was burning smell.
12. Smoke started coming out from the aircon vents after Mr Tan stopped the Insured Vehicle, due to red traffic signal, at the traffic light along Bayshore Road after exiting ECP. Upon seeing the smoke, he winded the door windows down and off the air conditioning system of the Insured Vehicle. Just then the traffic light signal turned green hence Mr Tan decided to continue driving the Insured Vehicle home, which was approximately 400 metres away.

13. When Mr Tan reached the gate of his home, he stopped the Insured Vehicle and saw fire coming out from the centre console area, at the immediate area surrounding the cup holders. He quickly off the engine and went inside his home to get a pail of water. With the help of his neighbours, he managed to extinguish the fire before SCDF officers arrived. The Insured Vehicle was eventually towed to Cycle & Carriage (Mercedes Benz) after clearance was given by the SCDF officers.

Incident Scene Photographs

14. During my telephone conversation with Mr Tan, he informed me that he had taken some photographs after the fire was extinguished. These photographs were duly forwarded to me for review.

15. The photographs provided had showed the Insured Vehicle stopped outside the gate of a house with the fire extinguished. A section of the Insured Vehicle's centre console, within the interior compartment, was seen to be melted/burnt. Notable, I did not observe any electronic device(s) placed near the melted/burnt area. See photo 7 & 8 below.



Photo 7 shows the Insured Vehicle at the incident scene, after the fire was extinguished (photograph provided to me by Mr Tan). The Insured Vehicle can be seen stopped outside the gate of a house with SCDF officers at scene.



Photo 8 shows the interior compartment of the Insured Vehicle at the incident scene, after the fire was extinguished (photograph provided to me by Mr Tan). A section of the Insured Vehicle's centre console (circled), within the interior compartment, was seen to be melted/burnt. Notable, I did not observe any electronic device(s) placed near the melted/burnt area.

Investigation and Technical Analysis

16. For this case, it can clearly be established that the fire had originated within the interior compartment of the Insured Vehicle, at the centre console area highlighted by the red circle in photograph 8 above and also in photograph 9 below. This takes into consideration that there was no fire damage observed at other areas of the Insured Vehicle.
17. At the time of my inspection of the Insured Vehicle, I had found almost all the burnt/damaged parts surrounding the centre console within the interior compartment dismantled and removed for Mercedes Benz's own technical investigation into the cause of fire. Upon my close examination of the removed burnt/damaged parts, I had found the auxiliary power outlet or more commonly referred to as cigarette lighter socket to be rusted.
18. Typically, the presence of rust on a steel/metal material body part of a vehicle that was involved in a fire incident is a consequence of that body part being exposed to natural environmental condition after layers of paint and its related compounds were melted due to prolonged exposure of that particular body part to high heat intensity. Following the aforesaid, it would be reasonable to then determine that the auxiliary power outlet of the Insured Vehicle was exposed to prolonged high heat intensity.
19. In modern day vehicles, the auxiliary power outlet is also a connector supplying electrical power (direct current) from the vehicle's electrical system. The auxiliary power outlet can be connected to provide the electrical current needed to power portable accessories that can be used in or near the vehicle. Since the auxiliary power outlet of the Insured Vehicle was exposed to prolonged high heat intensity and also given that the auxiliary power outlet is connected to the electrical system of the Insured Vehicle, it would appear to me that the fire to the Insured Vehicle had likely arisen due to abnormality of the electrical current at the auxiliary power outlet of the Insured Vehicle. In other words, the fire to the Insured Vehicle was of electrical nature to the wirings connecting to the pins of the auxiliary power outlet.
20. The fire occurring at the auxiliary power outlet of the Insured Vehicle is also supported by the rust observed on the front dashboard reinforcement, at the right side. This is the same side and in close proximity to where the auxiliary power outlet is located. The presence of rust seen on the front dashboard reinforcement is again an indication of prolonged exposure to high heat intensity at the right side area of the centre console. See photo 9 – 14 below.



Photo 9 shows the centre console of a similar make and model vehicle as the Insured Vehicle. The fire to the Insured Vehicle had occurred at the area highlighted by the red circle. This takes into consideration that there was no fire damage observed at other areas of the Insured Vehicle apart for the fire damage seen at this same area of the Insured Vehicle immediately after the fire was extinguished, which is shown in photograph 8 above.



Photo 10 shows the auxiliary power outlet (arrowed) or more commonly referred to as cigarette lighter socket of a similar make and model vehicle as the Insured Vehicle. The auxiliary power outlet of the Insured Vehicle was found to be rusted (refer to photograph 11 & 12 below), which is a sign of prolonged exposure to high heat intensity. The auxiliary power outlet is also located towards the right of the centre console where the front dashboard reinforcement was correspondingly found to be rusted (refer to photograph 13 & 14 below).



Photo 11 shows the auxiliary power outlet of the Insured Vehicle, which was found to be rusted. The presence of rust on a steel/metal material body part of a vehicle that was involved in a fire incident is a consequence of that body part being exposed to natural environmental condition after layers of paint and its related compounds were melted due to prolonged exposure of that particular body part to high heat intensity. Following the aforesaid, it would be reasonable to determine that the auxiliary power outlet of the Insured Vehicle was exposed to prolonged high heat intensity.



Photo 12 shows the auxiliary power outlet of the Insured Vehicle, which was found to be rusted. The auxiliary power outlet is also a connector supplying electrical power (direct current) from the vehicle's electrical system. The connecting pins are highlighted by the red circle. The fire to the Insured Vehicle had likely arisen due to abnormality of the electrical current at the auxiliary power outlet of the Insured Vehicle. In other words, the fire to the Insured Vehicle was of electrical nature to the wirings connecting to the pins of the auxiliary power outlet.



Photo 13 shows a general view of the centre console area of the Insured Vehicle, after the burnt/damaged parts surrounding the centre console were dismantled and removed. Rust was observed on the front dashboard reinforcement, at the right side (arrowed). This is the same side and in close proximity to where the auxiliary power outlet is located. The presence of rust seen on the front dashboard reinforcement is again an indication of prolonged exposure to high heat intensity and hence supports the fire occurring at the auxiliary power outlet of the Insured Vehicle.



Photo 14 shows a closer view of the rust that had developed on the front dashboard reinforcement, at the right side (arrowed). This is the same side and in close proximity to where the auxiliary power outlet is located.

21. With regard to the maintenance aspect of the Insured Vehicle, I was able to gather that the last servicing carried out to the Insured Vehicle was on 05 July 2021 at the mileage of 15,106km. The servicing was carried out at Cycle & Carriage Industries Pte Ltd (Mercedes Benz). I note from the document provided that the engine oil and oil filter amongst others were replaced. Overall, the work carried out on 05 July 2021 were akin to a standard general servicing of the Insured Vehicle. See photo 15 below.

Tan Yen Seng

81 Lucky Heights
Singapore 467628

Contact No



Reg No/Reg Date	SJG2020Z	/ 13/10/2020
Date In/Mileage	05/07/2021/	15106
Chassis No	WIK1771842J2095682	
Engine No	28291480352860	
Make/Model	MB/A 180	
Colour/Trim	028 859 Mojave Silv/ 041 101 ARTICO Blac	

Account No	Terms	Date/Time Printed	CSE	Operator	WIP No	Invoice/Credit Note No	
WCV43355	CRDVCH	05/07/2021/ 15:32	RT/	497 / Roy Tan	55068	22487192	
Description of Goods / Services					Qty	Unit Price S\$	Amount S\$
Z Maintenance							
SVC A							
A 00115701							132.00
PERFORM SERVICE A WITH PLUS PACKAGE							
A 000030101							60.00
Labour to carry Short Test (By Xentry) and carryout engine compartment wash							
S 40000201							23.36
Tyre Rotation & Balancing (Balance all 4 wheels)							
M SUNDRY							5.00
Sundry							
X WINDSHIELD WASHER FLUID				1.00	10.02	10.02	
X FUEL ADDITIVE				1.00	58.37	58.37	
X ENGINE OIL				1.00	86.39	86.39	
X ENGINE OIL 1 LITRE				1.00	18.22	18.22	
X OIL FILTER				1.00	49.79	49.79	
X SCREW PLUG				1.00	10.85	10.85	
X SEALING RING				1.00	2.93	2.93	
X OIL CLEANER				2.00	23.00	46.00	
Z MBNXSVCB							
NEXT SERVICE B/MAINTENANCE IS DUE 15,000KM OR 1 YEAR FROM DATE OF THIS INVOICE (WHICHEVER COMES FIRST).							

Photo 15 shows the servicing document that I was able to obtain. The Insured Vehicle was last serviced on 05 July 2021 at Cycle & Carriage Industries Pte Ltd (Mercedes Benz). The work carried out to the Insured Vehicle during this servicing were akin to a standard general servicing of the Insured Vehicle.

22. My checks with both local and international bodies and associations revealed that at the time of writing this report, the Insured Vehicle was involved in 2 manufacturer recall campaigns. Both recall campaigns were initiated this year (2021) and had involved issues relating to the emergency call system of the Insured Vehicle. Rectification to address the 2 recall campaigns have yet to be carried out to the Insured Vehicle as at the time of writing this report.

23. As per the brief description for the 2 manufacturer recall campaigns, the issue to the emergency call system does not pose a fire risk and hence is not related to and/or had contributed to this fire incident involving the Insured Vehicle. See search result from LTA below.

Vehicle No. SJG2020Z ←
Make/Model MERCEDES BENZ/ A180 SALOON PROGRESSIVE
Engine No.: 28291480352860
Chassis No.: W1K1771842J209568

Recall Details

Recall No.: R2021040975 ^
Manufacturer Recall Date: 19 Mar 2021
Estimated Completion Year of Recall: 2021
Brief Description (As Provided by Motor Dealer):

Mercedes-Benz AG has determined that the behavior of the emergency call system may not correspond to the specifications in certain vehicles. In this case, a temporary drop in the on-board electrical system voltage as a result of an accident could mean that the vehicle position communicated in the emergency call may not correspond with the actual position.

Date Rectified: ←

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Hotline Information:

CYCLE & CARRIAGE CUSTOMER ASSISTANCE CENTRE at 6471 9111

Screenshot shows the LTA search result regarding manufacturer recall. From the result, the Insured Vehicle was involved in 2 recall campaigns. The first recall campaign was initiated on 19 March 2021. According to the brief description provided, the purpose of the recall campaign was due to issue with the Insured Vehicle's emergency call system. Rectification to address the issue has yet to be carried out to the Insured Vehicle as at the time of writing this report. However, I note that the issue to the emergency call system does not pose a fire risk and hence is not related to and/or had contributed to this fire incident involving the Insured Vehicle.

Mercedes-Benz AG has determined that the behavior of the emergency call system may not correspond to the specifications in certain vehicles. In this case, a temporary drop in the on-board electrical system voltage as a result of an accident could mean that the vehicle position communicated in the emergency call may not correspond with the actual position.

Date Rectified:

-

Hotline Information:

CYCLE & CARRIAGE CUSTOMER ASSISTANCE CENTRE at 6471 9111

For more details, contact DAIMLER SOUTH EAST ASIA PTE. LTD.

Recall No.: R202111074

Manufacturer Recall Date:

20 Oct 2021

Estimated Completion Year of Recall:

2022

Brief Description (As Provided by Motor Dealer):

Mercedes-Benz AG has determined that the behavior of the emergency call system may not correspond with the specifications in certain vehicles.

Date Rectified:

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Hotline Information:

CYCLE & CARRIAGE CUSTOMER ASSISTANCE CENTRE at 6471 9111

For more details, contact DAIMLER SOUTH EAST ASIA PTE. LTD.

Screenshot shows the LTA search result for the 2nd manufacturer recall campaign that involved the Insured Vehicle. The 2nd recall campaign was initiated on 20 October 2021. According to the brief description provided, the purpose of the 2nd recall campaign was also due to issue with the Insured Vehicle's emergency call system. Rectification to address this issue has yet to be carried out to the Insured Vehicle as at the time of writing this report. Again, similar to the first call campaign, the issue to the emergency call system does not pose a fire risk and hence is not related to and/or had contributed to this fire incident involving the Insured Vehicle.

Conclusion

24. Having investigated and technically analysed the damages of burnt nature to the Insured Vehicle, I am of the view that the cause of fire to the Insured Vehicle was of electrical in nature. For this particular case, there was likely to be an abnormality of the electrical current at the auxiliary power outlet or more commonly referred to as cigarette lighter socket of the Insured Vehicle.
25. There was no modification(s) or additional electronic and/or electrical component(s) fitted on the Insured Vehicle at the time of my inspection of the Insured Vehicle.
26. There was no evidence to suggest that the cause of fire to the Insured Vehicle was due to poor maintenance and/or recurring electrical issues.
27. My investigations also revealed that the Insured Vehicle was involved in 2 manufacturer recall campaigns for issues relating to the emergency call system of the Insured Vehicle. Rectification to address the 2 recall campaigns have yet to be carried out to the Insured Vehicle as at the time of writing this report. However, the issue to the emergency call system does not pose a fire risk and hence is not related to and/or had contributed to this fire incident involving the Insured Vehicle.

**Ang Bryan Tani***AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA**Senior Technical Investigator**Technical Investigation & Accident Reconstructionist (SAE-A)*

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