



Your Ref: 2666262496SG
Our Ref : CI/AIG18012700/D

13 July 2018

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 SCK 234Z ON 18 JUNE 2018**

1. I refer to your request dated 28 June 2018.
2. My analysis, comments and opinions with respect to the cause of fire to the insured vehicle SCK 234Z (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 03 July 2018 at the premises of M/s ComfortDelgro Engineering Pte Ltd, 205 Braddell Road, Singapore 579701.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded: -

Vehicle Registration No.	: SCK 234Z
Make / Model	: Mercedes Benz S350 CGI L
Chassis No	: WDD2211572A391915
Year of Registration	: 2011 (May)
Mileage	: N.A (wiring affected)

5. The exterior body of the Insured Vehicle did not sustain any damage of burn nature. The interior compartment was similarly observed to be without any damage of burn nature.
6. Upon checking the engine compartment, I had found relatively minor damage of burn nature at the centre rear area of the engine compartment, just before the firewall panel. A stretch of wiring harness was observed to be partially burnt/melted. The firewall insulator behind the stretch of partially burnt/melted wiring harness was also observed to be with minor burn marks. See photo 1 – 6 below.



Photo 1 shows a general view of the front right body of the Insured Vehicle at the time of my inspection. The exterior body of the Insured Vehicle was observed to be in good general condition with no damage of burn nature found.



Photo 2 shows a general view of the rear left body of the Insured Vehicle at the time of inspection. The exterior body of the Insured Vehicle was observed to be in good general condition with no damage of burn nature found.



Photo 3 shows the interior compartment of the Insured Vehicle at the time of my inspection. There was no damage of burn nature observed within the interior compartment.



Photo 4 shows a general view of the engine compartment of the Insured Vehicle. Upon checking the engine compartment, I had found a stretch of wiring harness partially burnt/melted. This was towards the centre rear area (arrowed) of the engine compartment. The firewall insulator behind the stretch of partially burnt/melted wiring harness was also observed to be with minor burn marks.

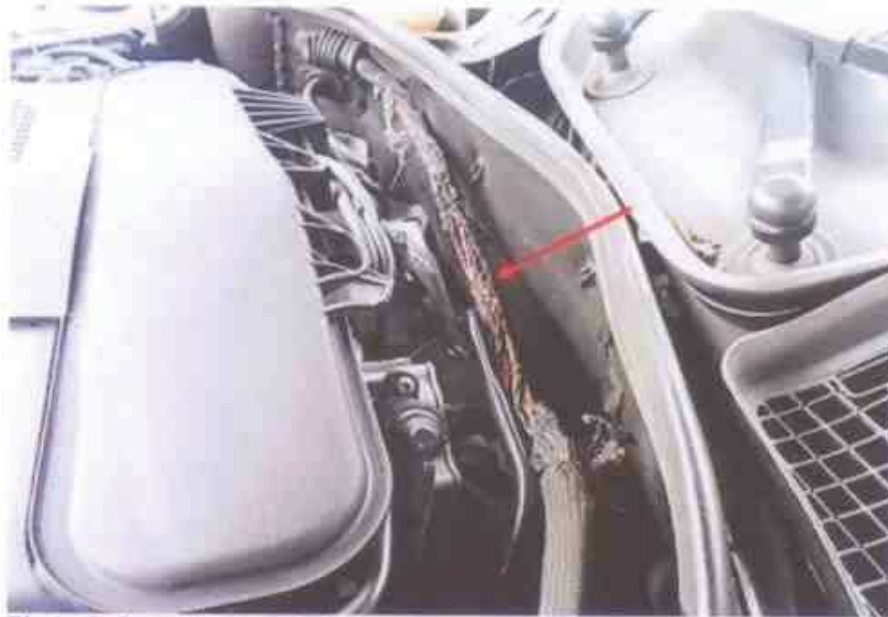


Photo 5 shows the stretch of wiring harness (arrowed) that was observed to be partially burnt/melted. This was towards the centre rear area of the engine compartment. There was no other damage of burn nature observed on the Insured Vehicle other than this partially burnt/melted wiring harness and firewall insulator that was directly behind the wiring harness.



Photo 6 shows the damage of burn nature that was observed on the Insured Vehicle. This was towards the centre rear area of the engine compartment, where I had observed a stretch of partially burnt/melted wiring harness. The firewall insulator behind the stretch of partially burnt/melted wiring harness was also observed to be with minor burn marks (circled).

7. There was no modification(s) and/or electronic and/or electrical component(s) additionally fitted on the Insured Vehicle at the time of my inspection.

Circumstance of Incident

8. From the police report E/20180619/2023, which was made by one Mohd Salleh Bin Abdullah (herein referred to as "**Mr Salleh**"), I note that the fire to the Insured Vehicle had started at a time when he was driving the Insured Vehicle. When on the right most lane of Holland Road, turning right to Sixth Avenue, he saw white smoke coming out from the front bonnet and upon opening the front bonnet, fire was seen in the engine compartment. Mr Salleh managed to put out the fire by using a bottle of water before the arrival of SCDF officers.
9. I spoke to Mr Salleh on 03 July 2018 and through telephone conversation, I was able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
10. According to Mr Salleh, on 18 June 2018 at about 1645hrs, he was driving the Insured Vehicle heading to 729 Bukit Timah Road, which is the residence of his employers. Mr Salleh works as a paid driver. He was from Orchard Road and estimates the duration of the drive from Orchard Road to the incident location to be about 15mins to 20mins. During the journey, he did not experience any abnormality to the Insured Vehicle. The Insured Vehicle was operating normally as per usual.
11. Along the right most lane of Holland Road, turning into Sixth Avenue, he saw white smoke coming out from the gaps surrounding the front bonnet, at the area near to the front windscreen. He immediately stopped the Insured Vehicle, switched off the engine, opened the front bonnet and alighted to check. According to Mr Salleh, he saw a small fire towards the rear of the engine compartment and immediately called SCDF for assistance. Mr Salleh then noticed that the fire was getting smaller and as such he poured some water, from a bottle that was placed in the Insured Vehicle, at the fire and managed to extinguish the fire before SCDF arrived.
12. After relating the earlier events to the SCDF officers and the police officers who had attended to the incident scene, Mr Salleh was advised to tow the Insured Vehicle away. Arrangement was subsequently made to tow the Insured Vehicle to ComfortDelgro Engineering Pte Ltd at Braddell Road.

13. With regard to the history of the Insured Vehicle, I was able to gather from Mr Salleh that the Insured Vehicle was purchased brand new about 7 years ago. It is registered under the name of his employer, Mrs Kathleen Liem, for whom he has been working for many years. Apart for driving his employer to various destinations on a daily basis, Mr Salleh also takes charge of the maintenance and servicing aspect of the Insured Vehicle. He informed me that the Insured Vehicle was sent for a routine servicing in March this year at a workshop in Bukit Merah area. As far as he can recall, apart for the usual wear and tear issues he did not experience any major mechanical and/or electrical problem with the Insured Vehicle since he started driving the Insured Vehicle about 7 years ago.
14. Mr Salleh informed me that he has not done any modification and/or fitted any electrical/electronic component(s) on the Insured Vehicle. He had taken some photographs during his time at the incident location and these photographs were forwarded to me for review together with several documents relating to the servicing aspect of the Insured Vehicle.

Investigation and Technical Analysis

15. The photographs provided to me had showed the Insured Vehicle stopped on the extreme right lane of a roadway. SCDF officers and a tow truck was at scene. There was no smoke or fire seen coming out from the Insured Vehicle as according to Mr Salleh, he had extinguished the fire before SCDF arrived. Upon closer examination of the photographs provided, I had noted that there was no unusual foreign material(s), object(s) and/or fluid accumulation on the ground where the Insured Vehicle had stopped.
16. In general, the observations gathered from my review of the photographs that were taken by Mr Salleh at the incident scene had corresponded to the description of events that he had related to me during our conversation on 03 July 2018. The damage of fire nature to the Insured Vehicle, as seen from the photographs provided, was also observed to be similar to what I had observed during my inspection of the Insured Vehicle See photo 7 & 8 below.



Photo 7 shows the Insured Vehicle at the incident location. There was no smoke or fire seen coming out from the Insured Vehicle as according to Mr Salleh, he had extinguished the fire before SCDF arrived. Upon closer examination of the photographs provided, I had noted that there was no unusual foreign material(s), object(s) and/or fluid accumulation on the ground where the Insured Vehicle had stopped. In general, the observations gathered from my review of the photographs that were taken by Mr Salleh at the incident scene had corresponded to the description of events that he had related to me during our conversation on 03 July 2018.



Photo 8 shows the wirings (arrowed) within the engine compartment of the Insured Vehicle that were partially burnt/melted. The damage of fire nature to the Insured Vehicle, as seen from the photographs provided, was observed to be similar to what I had observed during my inspection of the Insured Vehicle. In general, the observations gathered from my review of the photographs that were taken by Mr Salleh at the incident scene had corresponded to the description of events that he had related to me during our conversation on 03 July 2018.



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

17. Mr review of the documents relating to the maintenance and servicing of the Insured Vehicle revealed that the rear suspension system of the Insured Vehicle was replaced on 23 March 2018 along with the battery, washer tank motor and a torsion bar (undercarriage component). The front suspension system, auto transmission fluid and fluid filter along with the front torsion bar link (undercarriage component) were replaced on 19 April 2018. The replacement of these parts is usually associated with fair, wear and tear reason. See photo 9 & 10 below.

HIAP HENG AUTO CO. PTE LTD		INVOICE	
INVOICE TO CS 5CX 234 Z Mr Yusoff 9069038 Men S350 Men WDD0211579A3H1915		INVOICE NO. 21006 DATE 23/03/2018 TERMS C.O.D.	
VEHICLE NO. 5CX 234 Z			
ACTIVITY	QTY	EST. PR	AMOUNT
Sales Dismantle & replacement of the listed parts inclusive of labour charges -Rear air multi shock(original)2pcs	2	2,800.00	5,200.00
Sales Dismantle & replacement of the listed parts inclusive of labour charges -Front torsion bar(original)	1	500.00	500.00
Sales Dismantle & replacement of the listed parts inclusive of labour charges -ADM battery(original)	1	600.00	600.00
Sales Dismantle & replacement of the listed parts inclusive of labour charges -Auxiliary battery(original)	1	200.00	200.00
Sales Dismantle & replacement of the listed parts inclusive of labour charges -Grossnet washer tank motor -Washer tank lock capral original parts	1	200.00	200.00
Sales Dismantle & replacement of the listed parts inclusive of labour charges -Rear tree Moheon primary 2 255/40R18	2	400.00	800.00
Wheel alignment Wheel alignment	1	70.00	70.00
BALANCE DUE		S\$7,570.00	
ACKNOWLEDGED BY		PAID	
Thank you for your support & have a nice day!		12-1921 24/3 6 7570.00	

Photo 9 shows the document relating to the maintenance work carried out to the Insured vehicle on 23 March 2018. From the breakdown of the job scope, I note that the rear suspension system of the Insured Vehicle was replaced along with the battery, washer tank motor and a torsion bar (undercarriage component).



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Tax Invoice			
INVOICE TO Ann Mr Ester Chua Mr Jack		INVOICE NO. 21128 DATE 19/04/2018	
		TERMS 30 Days	
VEHICLE NO. SCK 234 Z			
QTY	UNIT	PRICE	TOTAL
1		2,800.00	2,800.00
Sales Altimatic Stuck RH			
1		2,800.00	2,800.00
Sales Altimatic Stuck LH			
1		500.00	500.00
Sales Auto Transmission Oil Auto Oil Filter Auto Pan Gasket			
1		180.00	180.00
Sales Replace Heater Pipe			
		0.00	
Sales Replace front torsion bar link 2pcs			
1		800.00	800.00
Labour charge Labour Charge for Installation			
		0.00	
Model/Marc: S350 Chassis No: WJ02211572A3M1916 Done by damis			
8182000		INCLUDES GST TOTAL	417.38
		TOTAL	6,380.00
		BALANCE DUE	S\$6,380.00
ACKNOWLEDGED BY			
<div style="text-align: right;"> 122109 3818 \$6380.00 </div>			
Thank you for your support & have a nice day!			
MAIN: Stock 1009 RD1-B2, Bukit Merah Lane 3, Singapore 159723 Tel: 65-6275 3529 Fax: 65-6273 8990 E-Mail: mhuat@singnet.com.sg BRANCH: 10, Borch Street, #01-10, West Connect Building, Singapore 227364 Tel: 65-6873 8809 Fax: 65-6873 8990 E-Mail: mhuatburch@singnet.com.sg			

Photo 10 shows the document relating to the maintenance work carried out to the Insured vehicle on 19 April 2018. From the breakdown of the job scope, I note that the front suspension system, auto transmission fluid and fluid filter along with the front torsion bar link (undercarriage component) were replaced. The replacement of these parts is usually associated with fair wear and tear reason.

18. For this case, the fire to the Insured Vehicle had originated within the engine compartment, at the centre rear area of the engine compartment. This was established given that the centre rear area of the engine compartment was the only area on the Insured Vehicle where damage of burn nature was found.

19. My examination of the centre rear area of the engine compartment, which was where the fire to the Insured Vehicle had originated, revealed wirings that were partially burnt/melted. There was no other part(s)/component(s) that was exposed to high heat intensity around this area of the engine compartment. The firewall insulator, which was observed to be partially burnt/melted, was not the igniting source of the fire as the firewall insulator is not a conductor of heat given that it is made of cloth type material. The physical damage and burn pattern found on the Insured Vehicle appears to then indicate that the cause of fire was due to electrical nature.
20. This partially burnt/melted stretch of wiring harness was an original factory fitted wiring harness which connects the Engine Control Unit (ECU) to the fuse box of the Insured Vehicle. The rubber insulation of the wiring harness could have been exposed to the heat generated during engine operation. After a prolong period, the rubber insulation of the wirings started to deteriorate and melt, exposing live wires that came into contact with each other, creating sparks that had ignited the fire. Unlike countries with different seasons, the hot local climate enhances the deterioration of any rubber material parts or components of a motor vehicle, in particular for those contained within its engine compartment. See photo 11 & 12 below.



Photo 11 shows the engine compartment of the Insured Vehicle. The fire to the Insured Vehicle had originated within the engine compartment, at the centre rear area (arrowed) of the engine compartment. This was established given that there was only a single area on the Insured Vehicle where damage of burn nature was found.



Photo 12 shows the partially burnt/melted wiring harness at the centre rear area of the engine compartment. The wiring harness was an original factory fitted wiring harness which connects the Engine Control Unit (ECU) to the fuse box of the Insured Vehicle. Heat generated during engine operation could have caused the rubber insulation of the wirings started to melt, exposing live wires that came into contact with each other, creating sparks that had ignited the fire.

21. My checks with both local and international bodies and associations revealed that at the time of writing this report, there was no manufacturer recall of similar make and model vehicle as the Insured Vehicle. See search result below obtained from LTA.

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:	1096C
Vehicle Details	
Vehicle Registration number:	SKR234Z
Make:	MERCEDES BENZ
Vehicle Model:	S 350 CGI L
Engine No.:	27695030002711
Chassis No.:	WDD2211572A391915

Recall Details

No Recall Detail records

Screenshot shows the LTA search result regarding manufacturer recall involving the Insured Vehicle. Results gathered from my search revealed that the Insured Vehicle was not involved in any manufacturer recall campaign.

Conclusion

22. 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, the fire had originated along the wirings inside the engine compartment, at the centre rear area of the engine compartment. The wirings were original factory fitted wirings connecting the Engine Control Unit (ECU) to the fuse box of the Insured Vehicle.
23. I 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 was no modification (s) and/or additional electronic and/or electrical component(s) fitted on the Insured Vehicle at the time of my inspection of the Insured Vehicle.
25. My investigations also revealed that at the time of writing this report, there is no manufacturer recall of similar make and model vehicle as the Insured Vehicle.



Ang Bryan Tani

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

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