



Your Ref: 4489450453SG-001
Our Ref : CI/AIG18002539/Z

09th February 2018

M/s AIG Asia Pacific Insurance Pte Ltd

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

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE SDW 78H ON 25th January 2018**

1. We refer to your letter dated 06th February 2018 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SDW 78H (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 07th February 2018 at the premises of Lai Huat (Meng Kee) Motor Pte Ltd (herein referred to as "Lai Huat"), 160 Sin Ming Drive, #04-01/02, Sin Ming Autocity, and Singapore 575722.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: SDW 78H
Make / Model	: BMW 740LI-3.0L A/T
Chassis No	: WBAKB42060CY83086
Year of Registration	: 2010 (April)
Mileage	: N.A. (wiring affected)
5. The Insured Vehicle was noted to have sustained fire damage that was confined to its front portion. The entire engine compartment of the Insured Vehicle was observed to be partially burnt while the interior compartment was observed to be relatively unaffected by the fire.
6. The fire had resulted in the body parts at the front left portion of the Insured Vehicle to be burnt. This had included its front bonnet & front windscreen amongst others. See photos 1 – 4 below.



Photo 1 shows the general view of the front portion of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its front portion. Its front bonnet, front windscreen and front windscreen wipers 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 windscreen of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its front portion. The glass had cracked and the wipers were found to be burnt and/or melted as a result of the fire.



Photo 3 shows the engine compartment of the Insured Vehicle at the time of our inspection. The rear left side of the entire engine compartment of the Insured Vehicle was observed to be partially burnt. The parts around the rear left side of the engine compartment were found to be burnt and/or melted as a result of the fire.



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

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 left side 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 rear left side of the bonnet of the Insured Vehicle and also the discolouration of the insulating material that had developed on the underside of the front bonnet, at the rear left side 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 discolouration of the insulating material on the underside of the front bonnet, around the rear left side area, is an indication that the rear left side area of the engine compartment had sustained exposure to prolonged high heat intensity. See photos 5 & 6 below.



Photo 5 shows the burn pattern and whitish burn marks (circled) that were found on the rear left side of the front bonnet of the Insured Vehicle. 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 6 shows a close-up view of the burn pattern and whitish burn marks (circled) that were found on the rear left side of the front bonnet of the Insured Vehicle. 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 7 shows the discolouration of the insulating material on the underside of the front bonnet, around the rear left side area (circled). The discolouration of the insulating material is an indication that the rear left side area of the engine compartment had sustained exposure to prolonged high heat intensity. Hence the fire to the Insured Vehicle can be determined to have originated towards the rear left side of the engine compartment.



Photo 8 shows a close-up view of the discolouration of the insulating material on the underside of the front bonnet, around the rear left side area (circled). The discolouration of the insulating material is an indication that the rear left side area of the engine compartment had sustained exposure to prolonged high heat intensity. Hence the fire to the Insured Vehicle can be determined to have originated towards the rear left side of the engine compartment.

10. Upon closer examination of the rear left side of the engine compartment which was where the fire to the Insured Vehicle had likely started, we had found several stretches of burnt wiring around the Insured Vehicle's engine compartment. These wirings were original factory fitted wirings that were mainly around the rear left side of the engine compartment near the ECM. Such condition normally indicates 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 photos 9 to 13 below.

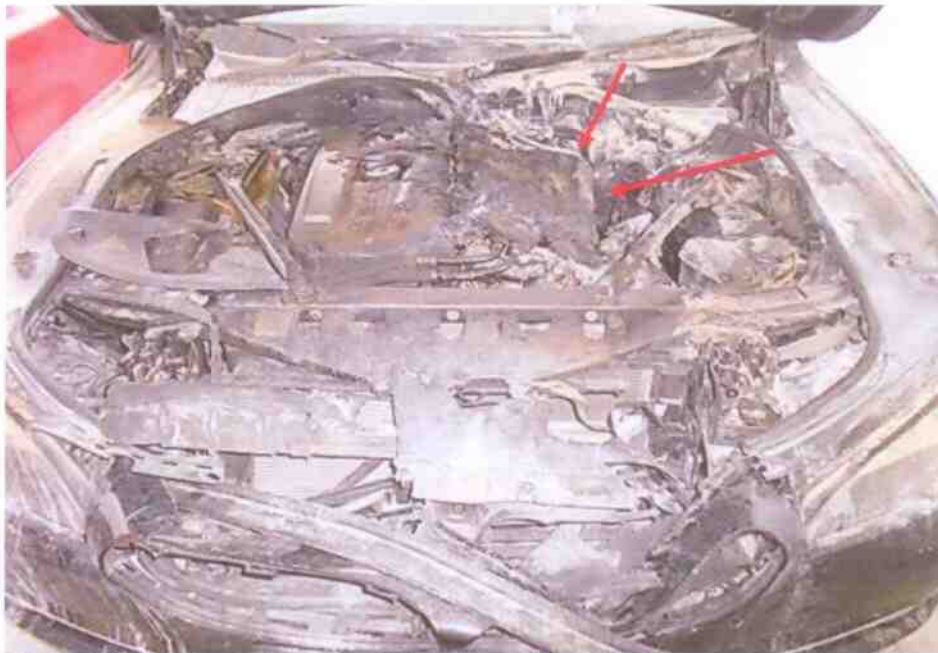


Photo 9 shows the wirings around the rear left side of the engine compartment which is near to the vicinity where the fire to the Insured Vehicle had likely started.



Photo 10 shows the wirings around the rear left side of the engine compartment which is near to the vicinity where the fire to the Insured Vehicle had likely started.

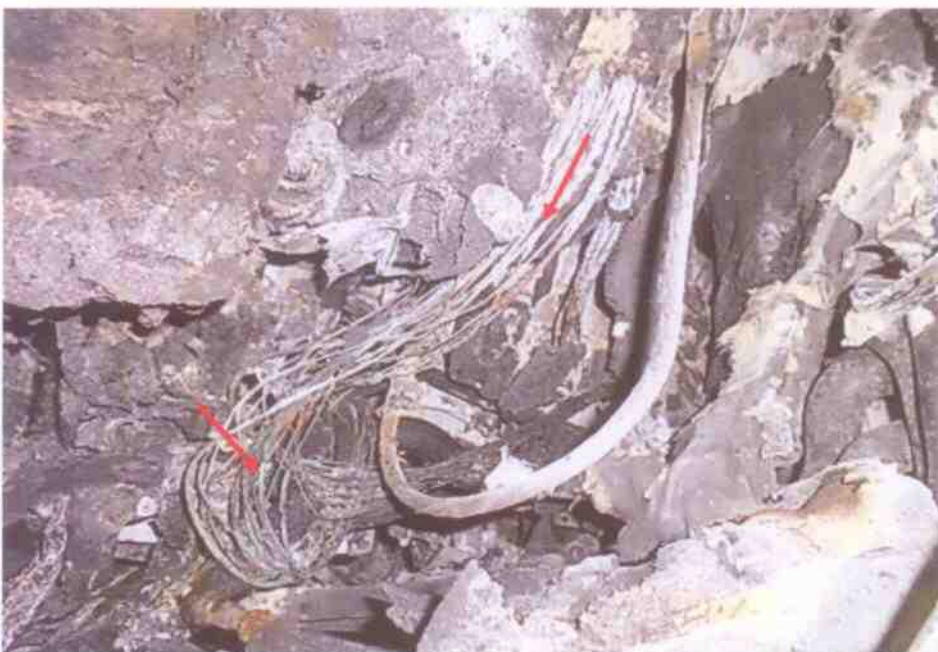


Photo 11 shows a close-up view of the wirings around the rear left side of the engine compartment which is near to the vicinity where the fire to the Insured Vehicle had likely started.



Photo 12 shows a closer view of the burnt wirings (red arrows) at the rear left side of the engine compartment. Such condition normally indicates internal heating of copper wires which is a sign of an electrical short circuit occurring.

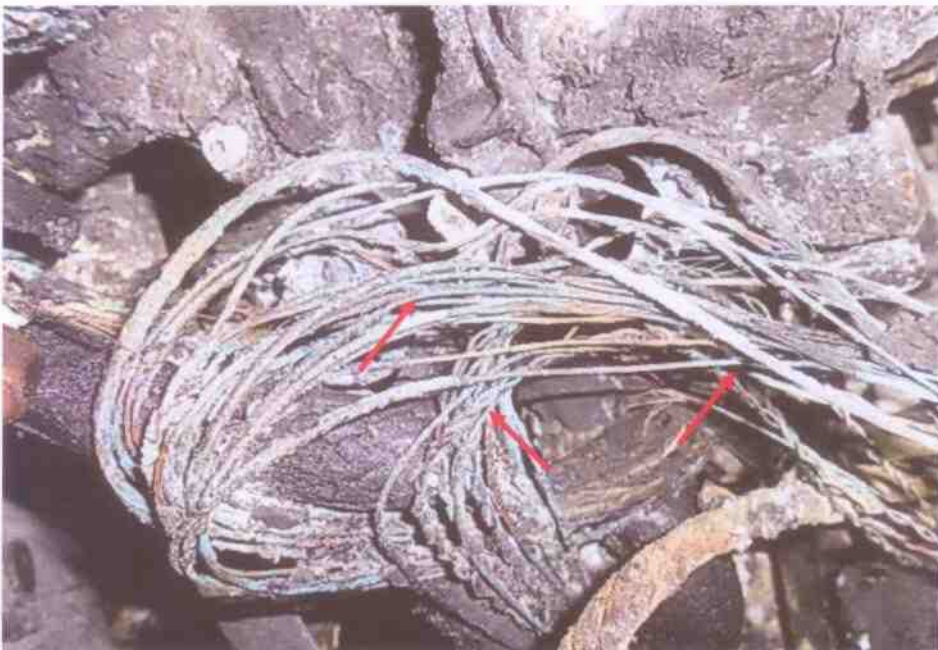


Photo 13 shows a close up view of the burnt wirings (red arrows) at the rear left side of the engine compartment. Such condition normally indicates internal heating of copper wires which is a sign of an electrical short circuit occurring.

11. From the Singapore Accident Statement which was made by Mr Goh Choon Huat (herein referred to as "**Mr Goh**"), we note that the fire to the Insured Vehicle had started at a time when he was driving the vehicle. Mr Goh was first alerted of the fire when he notice that his vehicle was going slower & slower until it came to stop and saw white smoke emitting from the front bonnet.
12. We managed to speak to Mr Goh on 09th February 2018 at his office at No. 52 Tuas Crescent 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 Goh, at about 1445hrs on 25th January 2018, he was driving the Insured Vehicle alone along Bukit Timah Expressway (herein referred to as "**BKE**") towards Seletar Expressway (herein referred to as "**SLE**") at Exit 8. He was heading towards home at Woodlands Crescent. Prior approaching exit 8 of BKE he noticed that the Insured Vehicle speed was decreasing slower than usual. The Insured Vehicle speed continuously decreasing until he decided to pull over to the white painted island in between junction of BKE & Kranji Rd (Exit 8) & came to a complete stop .
14. By this time the engine had stop idling. He had tried to crank to re-start the engine several times but to no avail. He then noticed smoke emitting from the rear left side of the bonnet which was about 1505hrs.
15. Worried that the Insured Vehicle might explode, he then rushed out of the Insured Vehicle & called his vehicle workshop & also tried to get help from other road users due to he didn't store any fire extinguisher in the vehicle. His workshop then called 995 on his behalf. While waiting for SCDF, a Police vehicle passed by. By then the smoke had sparked into fire. The Police vehicle stops & acted on the situation. The police officers then uses their in-vehicle fire extinguisher to extinguish the fire. Soon after SCDF came & both SCDF & SPF took control of the situation.
16. The fire-fighters peeled open the Insured Vehicle's front bonnet after getting Mr Goh's approval to do so. The fire was extinguished by SCDF. SCDF fire investigator arrived and interviewed Mr Goh on the incident. EMAS towing were engaged & towed away Mr Goh's vehicle to an open carpark at Woodlands Street 32 after getting approval from SCDF investigator. Mr Goh then made towing arrangements after EMAS towed the Insured Vehicle to the above said location. The tow truck that was engaged by Mr Goh arrived after and the Insured Vehicle was towed to Lai Huat.

17. Mr Goh made a police report at the Sembawang Neighbourhood Police Centre on 26th January 2018 at 0853 hours.
18. Mr Goh informed us that he neither noticed any warning lights nor abnormally high temperatures whilst driving the Insured Vehicle on the day of the incident.
19. With regards to the history of the Insured Vehicle, we spoke to Mr Goh as he is the registered owner of the Insured Vehicle. We were able to gather from Mr Goh that he bought the pre-owned Insured Vehicle from an individual. The COE expires in 28th April 2020. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle. This was supported by a servicing record showed by Mr Goh to us. The servicing was done by 1st Auto (Premium) Pte Ltd which involved replacing of wear & tear parts recommended by the workshop mechanic on 23rd September 2017 apart from the latest servicing done on 03rd January 2018 at Lee Luew Sing Motors.
20. Pertaining to the maintenance aspect, Mr Goh had submitted a servicing record as evidence on the Insured Vehicle serviced on 03rd January 2018.
21. Mr Goh had informed us that ever since he bought the Insured Vehicle, he has not done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.
22. We were able to gather some photographs taken by Mr Goh at the incident scene before the Insured Vehicle was towed away. We note that the location of the incident was located at a white painted island in between junction of BKE & Kranji Rd/SLE (CTE/TPE) (Exit 8) as shown in the below photographs. See photo 14 to 16 below.



Photo 14 shows the general view of where the Insured Vehicle located at the time of incident. This was at a white painted island in between junction of BKE & Kranji Rd/SLE (CTE/TPE) (Exit 8).



Photo 15 shows a closer view of the Insured Vehicle after the fire was extinguished (circled).



Photo 16 shows a general view of where the Insured Vehicle was positioned at the time of the incident. SCDF officers were seen attending to extinguish the fire.



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23. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Goh. 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 side of the road where the Insured Vehicle was positioned.
24. During the course of our investigations, we were able to obtain from Mr Goh, a document relating to the latest servicing done on the Insured Vehicle. The latest servicing was done on 03rd January 2018. The servicing package includes changing of engine oil, oil filter, air filter, auto transmission fluid (ATF) amongst others. Refer to invoice 1 below.

LEE LUEW SING MOTORS				
No 10 Ang Mo Kio Industrial Park 2A #03-10 AMK Autopoint Singapore 568047 Tel No. : 64837412 Fax No. : 64837416				
CASH (DORSON)			Cash Bill : 0178856	
			Invoice Date : 03/01/2018 Vehicle Num : SDW 78 H Make/Model : Mileage(Km) : PC/VOR/OC : Ref./Remark :	
S/N	Quantity	Particular	Unit Price	Amount S\$
1	7L	ENGINE OIL (MOBIL GOLD)	27.00	189.00
2	1	OIL FILTER	21.00	21.00
3	1	AIR FILTER	34.00	34.00
4	1SET	FRONT DISC PAD	298.00	298.00
5	1SET	REAR DISC PAD	245.00	245.00
6	2	FRONT DISC ROTOR	325.00	650.00
7	2	BRAKE SENSOR	29.00	58.00
8	1	AIR DUCT	485.00	485.00
9	1	AIR PIPE	158.00	158.00
10	2	FRONT SHOCK ABSORBER	1,280.00	2,560.00
11	2	FRONT SUSPENSION MOUNTING	115.00	230.00
12	2	SUSPENSION STOPPER	40.00	80.00
13		PROGRAMMING NEW SUSPENSION	120.00	120.00
LABOUR				540.00
-TO SERVICE VEHICLE				
-TROUBLESHOOT & REPAIR ABNORMAL NOISE				
-TO REPLACE SUSPENSION				
SingDollars : Five Thousand Seven Hundred Eight Only				
E & O E			Total S\$	5,708.00

Invoice 1 shows the servicing done on the Insured Vehicle on 03rd January 2018. The servicing package includes changing of engine oil, oil filter, air filter, auto transmission fluid (ATF) amongst others.

25. 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.
26. 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 Goh had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle.
27. 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 as the fire occurred after Mr Goh had stopped the Insured Vehicle at a bus stop. The location where the Insured Vehicle caught fire was also observed to be not at a secluded location.
28. 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 10 above.
29. 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 possible electrical or electronics failure to similar make and model vehicle as the Insured Vehicle that may possibly pose a fire risk. See search result from LTA 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:	0669J
Vehicle Details	
Vehicle Registration number:	SDW78H
Make:	BMW
Vehicle Model:	740Li 3.0L A/T ABS D/AB 2WD 4DR HD/5R
Engine No.:	03727265N54800A
Chassis No.:	WBABK42060CY83086
Recall Details	
No Recall Detail records	

Conclusion

30. 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 rear left area of the engine compartment.
31. 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.
32. 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.

33. Our investigations had 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 that may possibly be related to this incident.

34. 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.



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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