

Your Ref: S8M00RSX  
Our Ref :CS/ASM18014762/D

07 September 2018

**M/s AXA Insurance Pte Ltd**

8 Shenton Way #24-01  
AXA Tower  
Singapore 068811  
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE SJU 6831A ON 11 AUGUST 2018**

1. I refer to your request dated 14 August 2018.
2. My analysis, comments and opinions with respect to the cause of fire to the insured vehicle SJU 6831A (herein referred to as "**Insured Vehicle**") are set out below.

**Inspection of the Insured Vehicle**

3. The Insured Vehicle was physically inspected on 15 August 2018 at the premise of M/s Ethoz Group Pte Ltd, 39 Bukit Batok Crescent, Singapore 658075.
4. A static inspection was carried out to the Insured Vehicle where the following general information was first recorded: -

Vehicle Registration No.	: SJU 6831A
Make / Model	: Volkswagen New Golf 1.4 AT
Chassis No	: WVVZZZ1KZ9W584747
Year of Registration	: 2009 (December)
Mileage	: N.A (wiring affected)

5. The Insured Vehicle was noted to have sustained fire damage that was confined to its frontal body. Its engine compartment was observed to have been extensively burnt. The rear body and interior compartment were both unaffected by the incident.
6. Body parts that were observed to have been burnt and/or melted as a result of the fire had included the front fenders, front bonnet, front headlamps and front radiator grille amongst others. Parts inside the engine compartment like the radiator, intake manifold, air duct, cooling fan, rubber hoses and pipes amongst others were all burnt and/or melted as a result of the incident. See photo 1 – 4 below.



**Photo 1** shows a general view of the front right body of the Insured Vehicle at the time of inspection. The Insured Vehicle was observed to have sustained fire damage that was confined to its frontal body. Its front bonnet, front radiator grille, front right headlamp and front right fender were amongst the body parts that were found to have been burnt as a result of the fire.



**Photo 2** shows a general view of the front left body of the Insured Vehicle at the time of inspection. The Insured Vehicle was observed to have sustained fire damage at its frontal body. Its front left fender, front left headlamp and front bonnet were amongst the body parts that were found to have been burnt as a result of the fire.



**Photo 3** shows the engine compartment of the Insured Vehicle at the time of inspection. Almost all the parts inside the engine compartment were observed to have been burnt and/or melted as a result of the fire. These parts had included its radiator, air condenser, cooling fan, intake manifold, fuse box, battery, air duct, rubber hoses and pipes amongst others.



**Photo 4** shows the interior compartment of the Insured Vehicle. The interior compartment and rear body of the Insured Vehicle were both unaffected by the incident.



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 J/20180812/2113, which was made by one Lai Tian Lee (herein referred to as "**Madam Lai**"), I note that the fire to the Insured Vehicle had started at a time when the Insured Vehicle was parked. Madam Lai was first alerted of the fire when police officers came to her home to inform that the Insured Vehicle had caught fire.
9. Given the relatively brief description of events contained in Madam Lai's police report, I had on 17 August 2018 spoken to her spouse, Mr Lee Yong Fong (herein referred to as "**Mr Lee**"), who was the last person that drove the Insured Vehicle before it caught fire. 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 Lee, on 11 August 2018 at about 2230hrs, he was at home when 2 police officers came to his home to inform that the Insured Vehicle had caught fire. Upon returning to where the Insured Vehicle was parked, he saw smoke coming out from the gaps surrounding the front bonnet of the Insured Vehicle. He also saw SCDF officers at scene forcing open the front bonnet. They then subsequently sprayed water into the engine compartment and eventually disconnected the battery cable from the terminal.
11. Mr Lee informed me that the Insured Vehicle was last used about 2 hours before the fire incident when he and his family went out for dinner. At about 2000hrs, he drove the Insured Vehicle for about 3km to have dinner at a nearby eatery. The dinner lasted for about 45mins to an hour. He then drove back home and parked the Insured Vehicle inside parking lot 115, at level 3A of Block 196 Boon Lay Drive multi-storey carpark. After securing the Insured Vehicle, he returned to his home at Block 197C Boon Lay Drive #06-109. Mr Lee informed me that there was no abnormality to the Insured Vehicle during the journey from his home to the eatery and thereafter back to his home. When he left the Insured Vehicle to return home, everything was intact. This was at about 2200hrs.
12. With regard to the history of the Insured Vehicle, I was able to gather from Mr Lee that his wife is the registered owner of the Insured Vehicle however he is the main driver and person that takes care of the maintenance and upkeep aspect of the Insured Vehicle.

13. The Insured Vehicle was purchased brand new in 2009 and registered as a weekend plate motor vehicle. Mr Lee informed me that the Insured Vehicle is frequently parked at the same multi-storey carpark where it caught fire. He estimates the usage of the Insured Vehicle to be about twice a week. Mr Lee also informed me that as far as he can recall, he has not experience any major mechanical and/or electrical problem with the Insured Vehicle. There was a software upgrade to the mechatronics (transmission) of the Insured Vehicle in 2015. This is in line with the well-known issue with the mechatronics for Volkswagen motor vehicles. The Insured Vehicle was last serviced in July 2018 however Mr Lee was not able to provide any documents relating to the servicing and maintenance as he does not keep such documents.
14. Mr Lee also informed me that he has not done any modification and/or fitted any electrical/electronic component(s) on the Insured Vehicle. He has taken some photographs at the incident location and these were forwarded to me for review.

#### **Investigation and Technical Analysis**

15. My review of the photographs provided to me had showed the Insured Vehicle parked inside parking lot number 115 of a multi-storey carpark. The photographs seem to have been taken the day after the fire given that the fire had occurred during night hours while the photographs were taken during day hours.
16. From the photographs, I note the same intense burn mark, which was seen during my inspection of the Insured Vehicle, was formed on the centre of the front bonnet. The same burned to copper wire cable was also seen in the engine compartment of the Insured Vehicle. Generally, 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.
17. Upon closer examination of the photographs provided, I had also noted that there was no unusual foreign material(s), object(s) and/or fluid accumulation on the ground where the Insured Vehicle was parked. The observations gathered from my review of the photographs that was taken by Mr Lee at the incident scene had corresponded to the description of events that he had related to me during our conversation on 17 August 2018. See photo 5 & 6 below.



**Photo 5** shows the Insured Vehicle at the incident location. The same intense burn mark (circled), that I had observed during my inspection of the Insured Vehicle, can be seen similarly formed on the centre of the front bonnet. My close examination of the photographs provided had also showed no unusual foreign material(s), object(s) and/or fluid accumulation on the ground where the Insured Vehicle was parked.



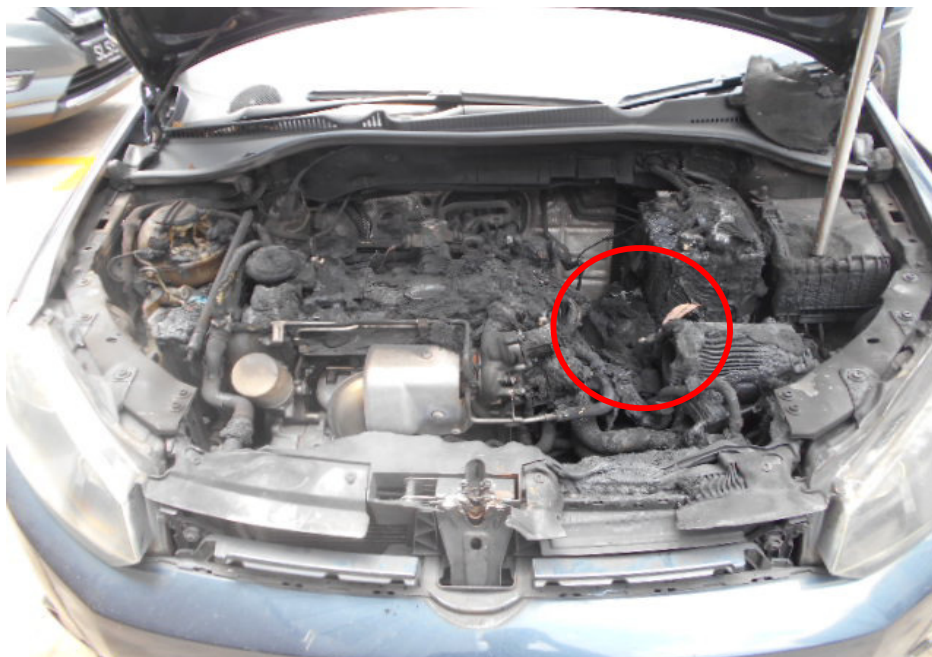
**Photo 6** shows the engine compartment of the Insured Vehicle when it was still at the incident location. The damage of fire nature to the Insured Vehicle, as seen from the photographs provided, was observed to be similar to what I had observed during my inspection of the Insured Vehicle. This had included the same burned to copper wire cable (arrowed). In general, the observations gathered from my review of the photographs that were taken by Mr Lee at the incident scene had corresponded to the description of events that he had related to me during our conversation on 17 August 2018.

18. For this case, intense burn marks were found on a single area on the Insured Vehicle. This was at the centre of the front bonnet. Such marks are normally formed on steel/metal material body parts that had been exposed to prolong high heat intensity and can usually be used to determine the origin of the fire. Given the characteristic of heat (hot air rises), the origin of fire can then be determined to be at the centre area of the engine compartment, below the area where the intense burn marks were found on the Insured Vehicle's front bonnet.
19. My examination of the centre area of the engine compartment, during my inspection of the Insured Vehicle, revealed the wire cable for the battery to be completely burned to its bare copper state. This wire cable is an original factory fitted wire cable. The bright reddish colour of the copper wires suggest that the wirings were exposed to high heat. Such condition normally indicates internal heating of copper wires, which is a sign of an electrical short circuit occurring. Hence the physical condition of the wire cable at the area where the fire had originated indicates that the cause of fire to the Insured Vehicle was due to electrical in nature. See photo 7 - 10 below.
20. Although the engine of the Insured Vehicle was switched off at the material time of incident, some electrical current would still be flowing within the electrical system as several electrical and/or electronic components on the Insured Vehicle would require current to remain in operation and/or in standby mode. These components include the alarm system, clock, radio, cabin light amongst others.



**Photo 7** shows the intense burn marks (circled) that were found on the centre of the Insured Vehicle's front bonnet. Such marks are normally formed on steel/metal material body parts that had been exposed to prolong high heat intensity and can usually determine the origin of the fire.





**Photo 8** shows the engine compartment of the Insured Vehicle at the time of my inspection. Following the location where intense burn marks were found and the characteristic of heat (hot air rises), the origin of fire was determined to be at the centre area (circled) of the Insured Vehicle's engine compartment.



**Photo 9** shows the completely burned to copper wire cable (arrowed) for the battery of the Insured Vehicle. This wire cable is an original factory fitted wire cable and is located at the centre area of the engine compartment, which was where the fire had originated. The bright reddish colour of the copper wires suggest that the wirings were exposed to high heat. Such condition normally indicates internal heating of copper wires, which is a sign of an electrical short circuit occurring.





**Photo 10** shows a closer view of the burned to copper wire cable (red arrow). The wire cable connects to the battery terminal (yellow arrow) of the Insured Vehicle.

21. My checks with both local and international bodies and associations revealed that at the time of writing this report, there was a manufacturer recall campaign that involved the Insured Vehicle in 2013. The records also show that the Insured Vehicle had undergone the required rectification on 23 August 2013. Basing on the description of the recall campaign, the cause of this recall was due to possible corrosion on metal surfaces cause by sulphur in the transmission oil that may cause a short circuit, in particular to the control unit. See photo 11 below showing the search result from LTA.
22. Although the cause of the recall could lead to a short circuit, I am of the opinion that this fire incident is unlikely to be related to the recall given that rectification was carried out to the Insured Vehicle in 2013. Between 2013 and now, there was no abnormality to the Insured Vehicle, as recalled by Mr Lee.

### 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:	9577B
Vehicle Details	
Vehicle Registration number:	SJU6831A
Make:	VOLKSWAGEN
Vehicle Model:	NEW GOLF 1.4 AT 5K13G5
Engine No.:	CAX238245
Chassis No.:	WVWZZZ1KZ9W584747
Recall Details	
1	Recall No.: R2013050016
	Manufacturer Recall Date: 30 Apr 2013
	Estimated Completion Year of Recall: 2013
	Brief Description (As Provided by Motor Dealer): Sulphur in the gear oil and an inorganic heat stabiliser in the plastic parts (iodine) can cause metallic surfaces to be attacked and to suffer from electrolytic corrosion. Conducting particles can then settle between the circuit paths of the control unit and could cause a short circuit.
	Date Rectified: 23 Aug 2013
	For more details, contact VOLKSWAGEN GROUP SINGAPORE PTE LTD
Hotline Information: Call Centre at 6305 7299	

**Photo 11** shows the LTA search result regarding the manufacturer recall campaign that involved the Insured Vehicle. The rectification for the recall was done on 23 August 2013. Although the cause of the recall could lead to a short circuit, I am of the opinion that this fire incident is unlikely to be related to the recall given that rectification was carried out to the Insured Vehicle.

### Conclusion

23. Having investigated and technically analysed the damages of burnt nature to the Insured Vehicle, I am of the view that the fire had originated inside the engine compartment of the Insured Vehicle, at the centre area of the engine compartment. For this particular case, the cause of fire was of electrical in nature to the wire cable for the battery. The wire cable was original factory fitted.

24. 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.

25. 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.
26. My investigations also revealed that at the time of writing this report, there was a manufacturer recall campaign in 2013 that involved the Insured Vehicle. Although the cause of the recall could lead to a short circuit, I am of the opinion that this fire incident is unlikely to be related to the recall as rectification was carried out to the Insured Vehicle in 2013.

**Ang Bryan Tani**

AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA

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