

Your Ref: 6310331408SG
Our Ref :CI/AIG18012846/D

20 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 SJS 5270K ON 18 JUNE 2018

1. I refer to your request dated 26 June 2018.
2. My analysis, comments and opinions with respect to the cause of fire to the insured vehicle SJS 5270K (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 Mova Automotive Pte Ltd, 15 Fan Yong Road, Singapore 629792.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded: -

Vehicle Registration No.	: SJS 5270K
Make / Model	: Ford Focus 1.6 Trend 5dr
Chassis No	: WF0PXXWPDP9R64810
Year of Registration	: 2009 (August)
Mileage	: N.A (wiring affected)

5. The Insured Vehicle was noted to have sustained severe fire damage at its frontal body. Its engine compartment was observed to have been extensively burnt. The rear body and interior compartment were however 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 bumper, front fenders, front bonnet, front headlamps, front grille and front windscreen amongst others. Parts inside the engine compartment like the radiator, intake manifold, air duct, cooling fan, hoses and pipes amongst others were all burnt and/or melted because 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 severe fire damage at its frontal body. Its front bumper, front bonnet, front 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.

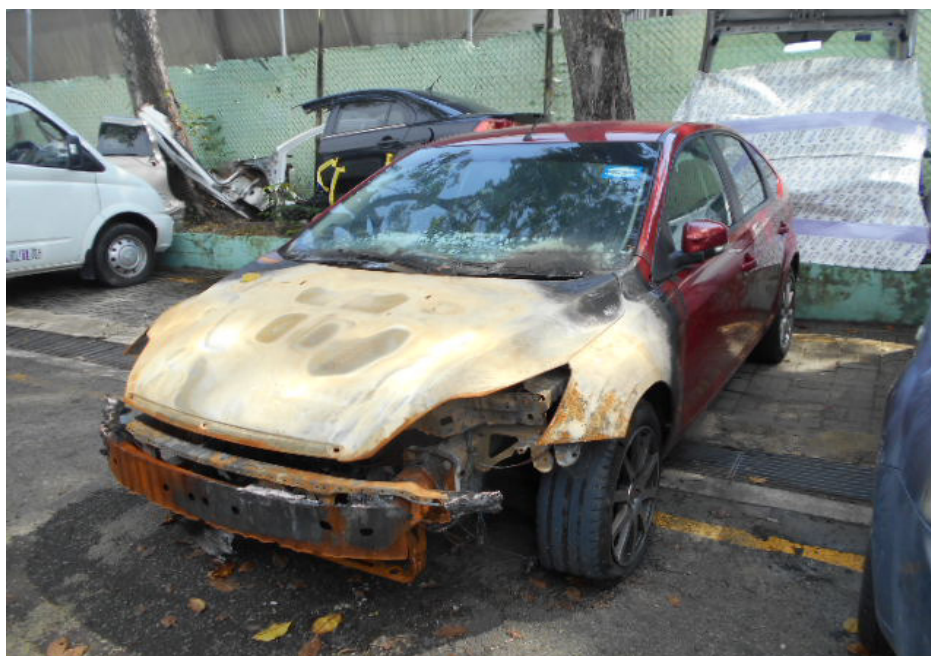


Photo 2 shows a general view of the front left body of the Insured Vehicle at the time of inspection. The Insured Vehicle was observed to have extensive sustained fire damage at its frontal body. Its front bumper, front left fender, front left headlamp, front bonnet and front windscreen were amongst 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 be 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, hoses and pipes amongst others.



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

7. I did not find any modification(s) and/or additional electronic and/or electrical component(s) fitted on the Insured Vehicle at the time of my inspection.

Circumstance of Incident

8. From the Singapore Accident Statement, which was made by one Mohamad Shahrem Bin Selamat (herein referred to as "**Mr Shahrem**"), I note that the fire had started at a time when the Insured Vehicle was parked with its engine switched off. Mr Shahrem had just parked the Insured Vehicle at a workshop in Bukit Merah Lane 3 when smoke started coming out from the front bonnet.
9. I manage to speak to Mr Shahrem on 12 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 Shahrem, the Insured Vehicle belongs to a rental company, Dandelion Ed Pte Ltd. He has been leasing the Insured Vehicle since April this year and has been working as a Grab driver since. On 14 June 2018, he drove the Insured Vehicle for a routine servicing at M/s Accord Auto Services Pte Ltd (herein referred to as "**Accord Auto**"), which is located at Block 1009 Bukit Merah Lane 3 #01-80, Singapore 159723. Accord Auto carries out servicing of vehicles belonging to Dandelion Ed Pte Ltd.
11. On the same day (14 June 2018) at about 1700hrs, Mr Shahrem collected the Insured Vehicle at Accord Auto and continued using the Insured Vehicle without any issue(s). On 18 June 2018, he drove the Insured Vehicle to Johore Bahru for car washing, where he was informed by the car washer that the cooling fan was still operating even though the engine was switched off. According to Mr Shahrem, this was not the first time that he had heard the fan operating after the engine was switched off. In fact, when collecting the Insured Vehicle at Accord Auto after the routine servicing on 14 June 2018, he had already heard a soft fan-like sound however he did not think that it was coming from the Insured Vehicle as the engine was not switched on at that time.
12. The same sound was heard on 17 June 2018, at a carpark in Ang Mo Kio. Again, Mr Shahrem did not suspect that it was coming from the Insured Vehicle as the engine of the Insured Vehicle was switched off. Mr Shahrem informed me that this sound was very faint and could only be heard from the outside of the Insured Vehicle. No vibration could be felt when touching the front bonnet hence he was not aware that it was coming from the Insured Vehicle till he was informed by the car washer on 18 June 2018, by which time the sound was slightly louder than previously heard.

13. Upon returning to Singapore after the car wash, Mr Shahrem sent a message regarding the problem to Dandelion Ed Pte Ltd and also informed them that he will be sending the Insured Vehicle to Accord Auto for checks. Mr Shahrem recalls arriving at Accord Auto at about 0610hrs. He parked the Insured Vehicle parallel along the driveway, in front of Accord Auto, which was not opened when he arrived.
14. Mr Shahrem informed me that he switched off the engine of the Insured Vehicle and was packing his personal belongings when he saw smoke coming out from the gaps surrounding the front bonnet. When he walked towards the front of the Insured Vehicle to check, he saw paint bubbling on the front bonnet, at the area near the front left headlamp. When he checked under the Insured Vehicle, he saw melted plastic dripping and flames near the front left tyre. He immediately called SCDF for assistance.
15. With regard to the history of the Insured Vehicle, I was able to gather from Mr Shahrem that as far as he can recall, he has not experienced any major mechanical and/or electrical problem(s) with the Insured Vehicle since taking possession of it in April 2018. The Insured Vehicle was operating without any abnormality, even after first hearing the fan-like sound when he collected the Insured Vehicle after the routine servicing at Accord Auto. There was an issue with the air-conditioning system of the Insured Vehicle in May 2018 and it was rectified at Accord Auto.
16. Mr Shahrem informed me that he has not done any modification(s) and/or fitted any electrical component(s) on the Insured Vehicle. He has taken some photographs at the time of incident whilst waiting for SCDF to arrive and these were forwarded to me for review.

Investigation and Technical Analysis

17. The photographs provided to me were mostly taken a distance away from where the Insured Vehicle could be seen. The quality of the photographs was relatively poor but had showed the frontal body of the Insured Vehicle engulfed in flames. A photograph taken after the flames were extinguished had however showed the Insured Vehicle parked parallel to a driveway with its frontal body badly burnt. Upon close examination of this photograph, I had noted that there was no unusual foreign material(s) and/or object(s) on the ground in the immediate area of where the Insured Vehicle was located. The damage of burnt nature to the Insured Vehicle immediately after the fire was put out had also corresponded to the damages as seen by me during my inspection of the Insured Vehicle.

18. In general, the observations gathered from my review of the photographs that were taken by Mr Shahrem at the incident scene had corresponded to his description of the events that he had related to me during our conversation on 12 July 2018. See photo 5 - 7 below.



Photo 5 shows the Insured Vehicle at the incident location. The photographs provided to me were mostly taken a distance away from where the Insured Vehicle could be seen. The quality of the photographs was relatively poor but had showed the frontal body of the Insured Vehicle engulfed in flames. In general, the observations gathered from my review of the photographs that were taken by Mr Shahrem at the incident scene had corresponded to his description of the events that he had related to me during our conversation on 12 July 2018.



Photo 6 shows the Insured Vehicle at the incident location. The photographs provided to me were mostly taken a distance away from where the Insured Vehicle could be seen. The quality of the photographs was relatively poor but had showed the frontal body of the Insured Vehicle engulfed in flames.



Photo 7 shows the Insured Vehicle at the incident location after the fire was extinguished. The damage of burnt nature to the Insured Vehicle had corresponded to the damages as seen by me during my inspection of the Insured Vehicle. There was also no unusual foreign material(s) and/or object(s) on the ground in the immediate area of where the Insured Vehicle was located. In general, the observations gathered from my review of the photographs that were taken by Mr Shahrem at the incident scene had corresponded to his description of the events that he had related to me during our conversation on 12 July 2018.

19. Given the circumstance of incident described by Mr Shahrem, the fire had occurred while the Insured Vehicle was parked with its engine switched off. The most common cause of fire arising from a vehicle that is parked with its engine not in operation is fire that is due to electrical nature.
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 may include the alarm system, clock, radio and cabin light amongst others.
21. The fire being due to electrical in nature is also supported by the physical condition of the wirings within the engine compartment. During my inspection of the Insured Vehicle, I had observed faint greenish residue along the wirings at the centre left area of the engine compartment. These wirings were original factory fitted wirings. The presence of such greenish residue indicates internal heating of copper wires, which is a sign of an electrical short circuit occurring. The greenish residue is normally left behind from oxidation as a result of chemical reaction involving the copper wires. See photo 8 - 10 below.

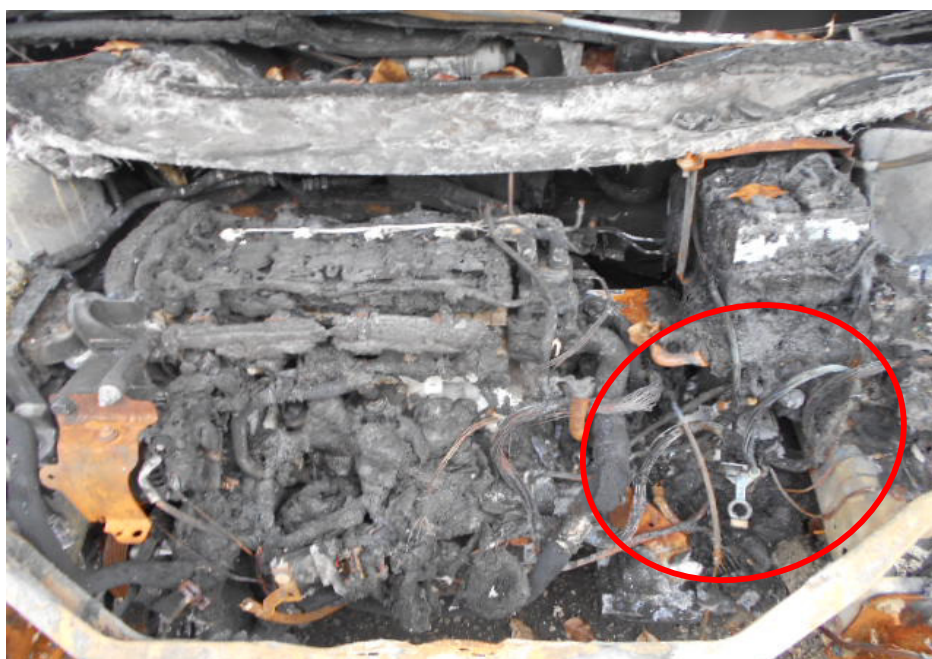


Photo 8 shows a general view of the Insured Vehicle's engine compartment. Faint greenish residue was observed along the wirings at the centre left area (circled) of the engine compartment. The presence of such greenish residue indicates internal heating of copper wires, which is a sign of an electrical short circuit occurring.



Photo 9 shows a closer view of the wirings (arrowed) at the centre left area of the Insured Vehicle's engine compartment, where faint greenish residue was found. These wirings were original factory fitted wirings.



Photo 10 shows a closer view of the wirings (arrowed) at the centre left area of the Insured Vehicle's engine compartment, where faint greenish residue was found. These wirings were original factory fitted wirings. The presence of such greenish residue indicates internal heating of copper wires, which would suggest that the cause of fire to the Insured Vehicle was due to electrical in nature.

22. During my interview with Mr Shahrem, he informed me that after the last servicing at Accord Auto on 14 June 2018, a fan-like sound was heard coming from the Insured Vehicle after switching off the engine. At that time, he was not aware that it was coming from the Insured Vehicle as the sound was very faint. According to Mr Shahrem, he was only aware that the sound was coming from the Insured Vehicle when a car washer had informed him about the sound a few hours before the Insured Vehicle caught fire.
23. The fan-like sound mentioned by Mr Shahrem was most likely the sounds emitting from the fan motor of the Insured Vehicle's cooling system. This fan motor operates by drawing current from the electrical system of the Insured Vehicle. If this sound had indeed started on 14 June 2018 after the servicing at Accord Auto, as what Mr Shahrem had recalled, I would expect the battery of the Insured Vehicle to fail prematurely, especially after switching off its engine for a long duration.
24. When the engine of the Insured Vehicle is switched off, the fan motor would draw current directly from the battery of the Insured Vehicle, draining the battery's power, and hence rendering starting issues with the Insured Vehicle. It was noted that Mr Shahrem did not mention any difficulty in starting the Insured Vehicle during the period of about 4 days, after collecting the Insured Vehicle from Accord Auto till the time the Insured Vehicle caught fire.
25. For this case, it could be that the fan motor was indeed still operating even though the engine of the Insured Vehicle was switched off however this could have only started to occur a few hours or thereabouts before the fire. If this was the case, the electrical system of the Insured Vehicle could have experienced an overload of current, which caused a short circuit, leading to the fire. The observation of greenish residue on the wirings of the Insured Vehicle, which was earlier discussed, had corresponded to an electrical short circuit.
26. With regard to the servicing and maintenance of the Insured Vehicle, I was able to obtain several documents relating to this from the registered owner of the Insured Vehicle, Dandelion Ed Pte Ltd. Upon review of these documents, I note that the Insured Vehicle was last servicing on 14 June 2018. Its engine oil, engine oil filter, front brake pad, battery and front left headlamp bulb amongst others were all replaced during this servicing.

27. Other than this, the cooling coil for the air conditioning system of the Insured Vehicle was replaced on 27 April 2018. Generally, my review of the documents provided revealed that the Insured Vehicle was regularly maintained. See photo 11 & 12 below relating to the last servicing on 14 June 2018.



TAX INVOICE

Invoice From:

Co Reg No: 201113141K
Accord Auto Services Pte Ltd (AV Branch)
 Blk 1009 Bukit Merah Lane 3 #01-80
 Singapore 159723
avadmin@mycarworkshop.com.sg
 TEL: 97690531
 FAX: 6274 5715

Invoice Status

Invoice is Unpaid

Invoice To:

Dandelion ED Pte Ltd
 1 Brooke Road Katong Plaza #02-02
 Singapore 429979
reginasng@yahoo.com
 Mobile: 91461572

Vehicle Information:

Vehicle Number: SJS5270K
 Make: Ford
 Model: Focus
 Mileage: 147626

Invoice # AV58201
Date 14-06-2018

Your Invoice

S/N	Item & Description	Quantity	Unit Price (before GST)	Total Sales (before GST)
1	To Supply: FUCHS Titan 5W40 (Including Engine Oil, Oil Filter) + Comprehensive 33 Points Check	1	\$60.75	\$60.75
2	Skim Front Disc Rotor	1	\$93.46	\$93.46
3	To Supply: 1 Set Front Wiper	1	\$28.04	\$28.04
4	To Supply: 1 Set Front Brake Pad	1	\$84.11	\$84.11
5	To Supply: 1pc Front LH Headlamp Bulb	1	\$18.69	\$18.69
6	To Supply: DIN 55 Battery (Amaron)	1	\$140.19	\$140.19
Totals:				
Total:				\$425.23
Sub Total:				\$425.23
GST:				\$29.77
Grand Total:				\$455.00

Photo 11 shows the last servicing that was carried out to the Insured Vehicle. This was on 14 June 2018, which was about 4 days before the fire incident. In general, my review of the documents relating to the servicing and maintenance aspect of the Insured Vehicle indicates that the Insured Vehicle was regularly maintained.



TAX INVOICE

Invoice From:

Co Reg No: 201113141K

Accord Auto Services Pte Ltd (AV Branch)

Blk 1009 Bukit Merah Lane 3 #01-80

Singapore 159723

avadmin@mycarworkshop.com.sg

TEL: 97690531

FAX: 6274 5715

Invoice Status

Invoice is **Unpaid**

Invoice # AV57749

Date 27-04-2018

Invoice To:

Dandelion ED Pte Ltd
1 Brooke Road Katong Plaza #02-02
Singapore 429979
reginasng@yahoo.com
Mobile: 91461572

Vehicle Information:

Vehicle Number: SJS5270K

Make: Ford

Model: Focus

Mileage: 137600

Your Invoice

S/N	Item & Description	Quantity	Unit Price (before GST)	Total Sales (before GST)
1	To Supply: Aircon Cooling Coil, Aircon Valve & Aircon Gas (Include Labour Charges)	1	\$794.39	\$794.39
Totals:				
Total:				\$794.39
Sub Total:				\$794.39
GST:				\$55.61
Grand Total:				\$850.00
Paid:				\$0.00

Photo 12 shows the document relating to the rectification of the air conditioning system of the Insured Vehicle on 27 April 2018. In general, my review of the documents relating to the servicing and maintenance aspect of the Insured Vehicle indicates that the Insured Vehicle was regularly maintained.

28. My subsequent checks with both local and international bodies and associations had 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:	Company
Owner ID:	4301M
Vehicle Details	
Vehicle Registration number:	SJS5270K ←
Make:	FORD
Vehicle Model:	FOCUS 1.6 TREND 5DR
Engine No.:	9R64810
Chassis No.:	WF0PXXWDP9R64810
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

29. 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 wiring inside the engine compartment, somewhere around the centre left area of the engine compartment. The wiring was an original factory wiring harness.
30. 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.
31. I did not find any modification(s) and/or additional electronic and/or electrical component(s) fitted on the Insured Vehicle at the time of my inspection.
32. 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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