



Your Ref : S8M0148A  
Our Ref : CS/ASM18021294/Z

30<sup>th</sup> November 2018

**M/s AXA Insurance (Singapore) Pte Ltd**  
8 Shenton Way #24-01, AXA Tower,  
Singapore 068811  
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE SJZ 2191M ON 22<sup>nd</sup> November 2018**

1. We refer to your letter dated 26th November 2018 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SJZ 2191M (herein referred to as "**Insured Vehicle**") are set out below.

**Inspection of the Insured Vehicle**

3. The Insured Vehicle was physically inspected on 26th November 2018 at the premises of SME Motor Pte Ltd, 1 Kaki Bukit Avenue 6, Blk D, #02-15/16/17/18 AutoBay @ Kaki Bukit Singapore 417883.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: SJZ 2191M
Make / Model	: Toyota Estima 2.4A
Chassis No	: ACR507028322
Year of Registration	: 08 <sup>th</sup> August 2006
Mileage	: N.A (battery melted)

5. The Insured Vehicle was noted to have sustained fire damage that was confined to its front portion & the interior portion. The entire engine compartment of the Insured Vehicle was observed to be severely burnt which also include the interior cabin were affected by the fire.
6. The fire had resulted in the body parts at the front portion of the Insured Vehicle to be burnt. This had included its front bumper, front bonnet, front support panel, front grille, front headlamps, and front windscreen. While the interior portion parts includes dashboard, steering wheel, seats, interior roof and interior door panel amongst others. See photo 1 – 6 below.



**Photo 1** shows the general view of the front right portion of the Insured Vehicle at the time of our inspection. The fire damage to the Insured Vehicle was confined to its front and interior portion. Its front bumper, front bonnet, front grille and front right headlamp and interior parts 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 right 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 bumper, front bonnet and front left headlamp were amongst the body parts that were found to have been affected as a result of the fire.



**Photo 3** shows the engine compartment of the Insured Vehicle at the time of our inspection. The entire engine compartment of the Insured Vehicle was observed to be severely burnt. Most of the parts inside the engine compartment were found to be burnt and/or melted as a result of the fire.



**Photo 4** shows the windshield of the Insured Vehicle, which was observed to be missing amongst the parts that were found to have been damaged as a result of the fire.



**Photo 5** shows the interior roof top of the Insured Vehicle, which was observed to be burnt. It was amongst the parts that were found to have been damaged as a result of the fire.



**Photo 6** shows the interior cabin of the Insured Vehicle, which was observed to be burnt. It was amongst the parts that were found to have been damaged as a result of the fire.

7. At the time of inspection, we did not observe any unusual skeletal remains which could have suggested that there was possible modification(s) and/or 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, This can be determined from the burn pattern and the high heat intensity burn marks (whitish burn marks) found on the front bonnet and front left side fender of the Insured Vehicle.
9. These whitish burn marks are a result of exposure to prolong 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. See photo 7 below.



**Photo 7** shows the burn pattern and whitish burn marks (circled) that were found on the top side of the front bonnet of the Insured Vehicle. Such whitish burn marks are a result of exposure to prolong heat intensity, which may indicate where the fire had started. Rust would also begin to develop on these areas soon after the fire.

10. Upon closer examination of the area around the front left of the engine compartment, which was in the immediate vicinity of where the fire to the Insured Vehicle had likely started, we had found several stretches of wiring burnt internally to its bare copper state. These wirings were observed to be greenish in colour believe to be the focal point of the ignition of fire. The wirings of the Insured Vehicle and are likely to be the original engine wire harness. Such condition normally indicate 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 photo 8 - 9 below.



**Photo 8** shows the close-up view of the wirings around the front of the engine compartment, which was in the immediate vicinity where the fire to the Insured Vehicle had likely started. These wirings were observed to be greenish in colour believe to be the focal point of the ignition of fire. The wirings (red arrow) were found to have been burnt internally, suggesting occurrence of an electrical short circuit. The wirings also appear to be an original engine wire harness of the insured vehicle.



**Photo 9** shows a semi-close up view of the wirings (red arrow) which were found to have been burnt internally, suggesting occurrence of an electrical short circuit.

11. From the Singapore Accident Statement, which was made by Mr Yen Boo from Kan Fook Sing Motor Workshop on behalf of Mr Sammeta Srikanth Reddy, (herein referred to as "**Mr Srikanth**") who was the last person driving the Insured Vehicle. Mr Srikanth was driving the Insured Vehicle at TPE exit 10 when he saw smoke coming out from the front, he then alighted the Insured Vehicle and soon after it was engulfed with fire.
12. We had arranged for a face to face interview with Mr Srikanth in his office which is at GreatSolutions Pte Ltd, No. 8, Loyang Way 4, Singapore 507604 on 27<sup>th</sup> November 2018 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. Mr Srikanth is currently working as an Assistant Operations Manager for GreatSolutions Pte Ltd; he has been running the business operations for about 41/2 years assisting an operations manager. The Insured Vehicle was registered under GreatSolutions Pte Ltd. However, he is the main driver. Although sometimes the Insured Vehicle will be driven by other company staff occasionally. Mr Srikanth drives the Insured Vehicle mainly to office, other outlets & meeting clients for business purposes.

14. According to Mr Srikanth, on 22<sup>nd</sup> November 2018 at about 1400hrs he had driven the Insured Vehicle to office (HQ) from where it was parked at Terminal 3 Changi Airport. He then proceeds to Hougang to one of his customer's premises and proceed back to the office (HQ).
15. Mr Srikanth took TPE route and exit the highway from Exit 10. Before exiting the highway, he smells of burning smell came from the front dashboard. He stopped immediately to check on the engine. He managed to open the front bonnet and saw fire was already igniting from the wire harness at the engine's front portion. He stopped passing vehicles to borrow fire-extinguisher. A vehicle stopped to hand him fire-extinguisher with the effort to extinguish the fire but still failed. By then SCDF was summoned by member of public. In about 15 minutes SCDF fire fighters managed to extinguish the fire. No one was injured & no properties were damage from the fire incident. Mr Srikanth was interviewed by both SPF & SCDF investigating officers for facts of case investigation.
16. The Insured Vehicle was eventually arranged to be towed from the incident location to SME Motor Pte Ltd, 1 Kaki Bukit Avenue 6, Blk D, #02-15/16/17/18 AutoBay @ Kaki Bukit Singapore 417883 for further process. That was after clearance was obtained from both SPF & SCDF investigating officers, who had also attended to the scene.
17. We were able to gather from Mr Srikanth that the Insured Vehicle was purchased pre-owned from a car dealer in 2016. According to Mr Srikanth, he did not experience any mechanical and/or electrical problem with the Insured Vehicle prior to the fire incident when he was driving it earlier in the day. To the best of her recollection, there has not been any major mechanical and/or electrical problem with the Insured Vehicle apart from the usual wear and tear that a vehicle would experience.
18. Regarding the maintenance aspect, Mr Srikanth informed me that the last servicing carried out on the Insured Vehicle was on 14<sup>th</sup> June 2018 at his regular workshop "SME Motor Pte Ltd" at 1 Kaki Bukit Avenue 6, Blk D, #02-15/16/17/18 AutoBay @ Kaki Bukit Singapore 417883. He was able to provide me with a document relating to this servicing. Our review of this document revealed that the Insured Vehicle did undergo for a major repair which includes preventive maintenance servicing. See document photo below relating to this servicing which was provided to me by Mr Srikanth. See photo 10 below.



Auto  
Consultants  
Pte Ltd

51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108

**CASH SALE**

Automotive Superfix  
1 Kava Bukit Ave 6, #02-25/26  
AutoBay@Kava Bukit  
Singapore 417863  
Tel: 9080 8003

No: SJZ 2191M (1)  
Tagora 651mm

(Repair SJZ 2191M) CO. CAR  
Messrs: CAR BUYERS AUTOMOTIVE PTE LTD ← Paid by  
To: Treat Solutions Pte Ltd

DATE: 14/06/2018

1.	Replace fanbelly (Used)				\$1800-00
2.	Valve cover gasket				\$50-00
3.	Oil Seals	1 Set			\$40-00
4.	O ring	1 set			\$50-00
5.	Steering column	1pc			\$180-00
6.	front shock absorber	2pc	\$175-00		\$350-00
7.	Front linkage	2pc	\$60-00		\$120-00
8.	front dust cover		\$30-00		\$60-00
9.	front stopper		\$20-00		\$40-00
				SUB TOTAL :	
				TOTAL :	

18 OCT 2018  
E & O E  
BY: \_\_\_\_\_

ISSUE BY: \_\_\_\_\_

**CASH SALE**

Automotive Superfix  
1 Kava Bukit Ave 6, #02-25/26  
AutoBay@Kava Bukit  
Singapore 417863  
Tel: 9080 8003

No: SJZ 2191M (2)  
Tagora 651mm

30/8  
**POSTED**  
3/0 (from Mr. Raj)

Messrs: CAR BUYERS AUTOMOTIVE PTE LTD.

DATE: 14/06/2018

10.	Front mounting	2pc	\$75-00		\$150-00
11.	RH sliding door motor				\$260-00
12.	Labour (change)				\$200-00
13.	Service				\$100-00
14.	A/c compressor (Used)				\$280-00
15.	A/c filter				\$45-00
16.	labour and gas				\$50-00
17.	Inspection Fees				<del>\$120-00</del>
18.	head light	1 Set			<del>\$600-00</del>
				SUB TOTAL :	
				TOTAL :	\$3775-00

18 OCT 2018  
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BY: \_\_\_\_\_

ISSUE BY: \_\_\_\_\_

Photo 10 shows a repair & preventive maintenance record provided by Mr Srikanth.

19. Mr Srikanth also informed me that there was no modification(s) and/or additional electronic or electrical component(s) fitted on the Insured Vehicle.

### **Site Incident Photograph**

20. Although there was no CCTV camera(s) around the incident location, we were however able to obtain photographs which were taken by Mr Srikanth at the incident location. The photographs were taken at the time of the fire incident.

21. In general, the information that could be gathered from these photographs had corresponded to the events that were related to me by Mr Srikanth. 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. See photo 11 - 12 below.



**Photo 11** shows the Insured Vehicle at the incident scene. SCDF fire fighters were seen trying to extinguish the fire from the Insured Vehicle.



Photo 12 shows the Insured Vehicle at the incident scene. SCDF fire fighters were seen trying to extinguish the fire from the Insured Vehicle.

22. 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 there was no warning indication from the meter panel at the dashboard.
23. The possibility of the fire being due to external factor (foreign material(s) stuck on hot surfaces, arson and sabotage amongst others) would also seem unlikely given that our examination of the available incident scene photographs did not reveal any unusual material(s)/object(s) found on the ground near where the Insured Vehicle was parked.
24. The possibility of the fire being due to electrical in nature would then seem more likely given that engine overheating and external factor would both seem unlikely. The fire being due to electrical nature is also supported by the condition of the wirings of the Insured Vehicle, which was earlier discussed in paragraph 10 above.
25. 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 electrical nature to similar make and model vehicle as the Insured Vehicle that may possibly be related to this incident. See photo 13 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:	Company
Owner ID:	3793H

#### Vehicle Details

Vehicle Registration number:	SJZ2191M
Make:	TOYOTA
Vehicle Model:	ESTIMA 2.4A
Engine No.:	2AZC045922
Chassis No.:	ACR507028322

#### Recall Details

No Recall Detail records

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**Photo 13** shows there is no manufacturer recall of electrical nature to similar make and model vehicle as the Insured Vehicle that may possibly be related to this incident.

### Conclusion

26. 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 front of the engine compartment. The wiring was an original factory fitted on the Insured Vehicle.
27. 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.
28. 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.



29. Our investigations had also revealed that at the time of writing this report, there is no manufacturer recall of electrical nature to similar make and model vehicle as the Insured Vehicle that may possibly be related to this incident.

**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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