LKK Auto Consultants Pte Ltd

Company Registration No. 199607198R

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Your Ref: 1201900007404
Our Ref :CS/FWD19005359/D

01 April 2019

FWD Singapore Pte Ltd
6 Temasek Boulevard #18-01
Suntec Tower 4
Singapore 038986
(Motor Claims Department)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE SJM 8954H ON 20 MARCH 2019

1. I refer to your request dated 25 March 2019 and the instructions therein.

2. My analysis, comments and opinions with respect to the cause of fire to the insured vehicle SJM 8954H (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 26 March 2019 at the premises of M/s Progressive Car Care Pte Ltd, Block 3022A Ubi Road 1 #01-45/46, Singapore 408716.

4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded: -

Vehicle Registration No.	: SJM 8954H
Make / Model	: Suzuki SX4 1.6HB AT
Chassis No	: JSAGYA21S00203790
Year of Registration	: 2009 (January)
Mileage	: N.A (wiring affected)

5. The Insured Vehicle was observed to have sustained extensive fire damage all around. Parts inside the interior compartment and inside the engine compartment were also observed to be completely burnt, leaving charred skeletal remains. The engine and transmission were also affected.

6. At the time of inspection, I did not find 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. See photo 1 – 5 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 extensive fire damage all around. The body panels at the frontal portion and the undercarriage components at the front underside were all found to have been burnt to char.

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 extensive fire damage all around. The body panels at the frontal portion and the undercarriage components at the front underside were all burnt to char.

Photo 3 shows the interior compartment of the Insured Vehicle. All the parts inside the interior compartment were found to be extensively burnt. Its front seats, rear seats, roof upholstery, carpet and various trims were all burnt and/or melted as a result of the fire.

Photo 4 shows the engine compartment of the Insured Vehicle. The various parts and components within the engine compartment of the Insured Vehicle were all extensively affected by the fire. This had included the engine and transmission of the Insured Vehicle.

Photo 5 shows the rear right body of the Insured Vehicle. Comparing the overall extent of fire damage like the rear tyres vs the front tyres, rear exhaust pipe unaffected etc, it would appear that the frontal portion of the Insured Vehicle was more affected as compared to its rear portion.

Circumstance of Incident

7. From the Singapore Accident Statement, which was made by Mr Wang Meng Yew (herein referred to as "**Mr Wang**"), I note that the fire to the Insured Vehicle had started at a time when he was driving the Insured Vehicle along PIE towards the direction of Tuas. Mr Wang smelt burning smell and immediately steered the Insured Vehicle to the road shoulder and turned off the engine. Upon alighting he noticed white coloured smoke and thereafter black coloured smoke coming out from the front bonnet. Flames started to appear, and the Insured Vehicle was soon engulfed in flames.

8. I spoke to Mr Wang on 01 April 2019, where 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.

9. According to Mr Wang, on 20 March 2019 at about 1500hrs, after having his lunch at Geylang area, he started driving the Insured Vehicle intending to head to Holland Road for a business appointment. Mr Wang estimates driving the Insured Vehicle for about 15mins to 20mins when he started smelling something burning coming from the Insured Vehicle.

10. Mr Wang steered the Insured Vehicle to the left and stopped along the road shoulder of PIE, where he then alighted to check after turning the engine off. Upon alighting, he saw white coloured smoke coming out from the gaps of the front bonnet, in front of the driver's side. The smoke soon turned to black colour and was coming out from the gaps surrounding the entire front bonnet. Flames started to appear at the area where white coloured smoke was first seen, and very soon it started to spread before engulfing the entire front portion of the Insured Vehicle.

11. Mr Wang called SCDF for assistance and whilst waiting for their arrival, a motorist had stopped and tried to put out the fire by using a fire extinguisher from his vehicle. However, this was unsuccessful, and the fire was eventually put by SCDF officers upon their arrival. Towing service to tow the Insured Vehicle away was subsequently arranged after clearance was given by SCDF officers and Police officers, who had attended to the incident scene

12. With regard to the history of the Insured Vehicle, I was informed by Mr Wang that he recently purchased the Insured Vehicle from a used car dealer located at Turf City. This was sometime in December 2018. Mr Wang is the registered owner of the Insured Vehicle and is also the main driver since taking possession of it. The COE of the Insured Vehicle was extended for another 5 years in December 2018.

13. Mr Wang informed me that shortly after taking possession of the Insured Vehicle, he encountered an issue with the central locking system of the Insured Vehicle, which was rectified at the workshop of the used car dealer. A pair of engine coolant hoses were also replaced recently when Mr Wang sent the Insured Vehicle for servicing sometime in February 2019. No document(s) relating to this servicing could be provided as all document(s) were kept in the Insured Vehicle and destroyed due to the fire.

14. During my conversation with Mr Wang, he informed that he took some photographs whilst at the incident scene and these were duly forwarded to me for my review.

Investigation and Technical Analysis

15. The photographs provided to me by Mr Wang had showed the Insured Vehicle parked along the road shoulder at a time when it was engulfed in fire, and also at a time when after the fire was extinguished. Upon reviewing the photographs, I had noted a sequence of events that allowed me to establish where the fire had originated. Flames were first seen at the frontal portion of the Insured Vehicle, outside of its interior compartment before it had spread to its interior compartment and thereafter to its rear portion. Base on this observation, it can be established that the fire to the Insured Vehicle had originated at its frontal portion, outside of its interior compartment. This also follows my observations during the physical inspection of the Insured Vehicle where it was observed that the extent of fire damage was more severe at its frontal portion as compared to its rear portion. See photo 6 - 8 below.

Photo 6 shows the Insured Vehicle at the incident scene. From the photographs provided by Mr Wang, the Insured Vehicle could be seen parked along the road shoulder with the fire at its frontal portion, outside of its interior compartment. The flames thereafter spread to its interior compartment before spreading to its rear portion and eventually covering the entire Insured Vehicle. Base on the sequence of events seen from the photographs provided by Mr Wang, it can be established that the fire to the Insured Vehicle had originated at its frontal portion.

Photo 7 shows the Insured Vehicle with the fire having spread to its interior compartment (photograph taken by Mr Wang). Base on the sequence of events seen from the photographs provided by Mr Wang, it can be established that the fire to the Insured Vehicle had originated at its frontal portion, outside of its interior compartment.

Photo 8 shows the Insured Vehicle completely covered by fire at the incident scene (photograph taken by Mr Wang). Upon examination of the photographs provided, it was noted that flames had first engulfed the frontal portion of the Insured Vehicle, outside of its interior compartment before spreading to its rear portion. Base on the sequence of events seen from the photographs provided by Mr Wang and shown in photograph 6 to 8 above, it can be established that the fire to the Insured Vehicle had originated at its frontal portion, outside of its interior compartment.

16. Since the fire can be established to have first appeared at the frontal portion of the Insured Vehicle, outside of its interior compartment; and given that Mr Wang had seen smoke coming out from the gaps surrounding the front bonnet, the origin of fire would have then been from within the engine compartment of the Insured Vehicle and had ignited whilst the Insured Vehicle was being driven/engine in operation. Common causes of fire arising from a vehicle that is being driven and/or with its engine in operation include engine overheating, leakage of fluid onto hot surfaces or electrical nature.

17. Fire due to an overheated engine was unlikely as the engine of the Insured Vehicle was still able to be operated after Mr Wang had first smelt burning smell. He was able to drive the Insured Vehicle, bring it to a complete stop along the road shoulder and turned off the engine before alighting to check, where he then discovered smoke coming out from within the engine compartment. In the event if the Insured Vehicle's engine had overheated, the mechanical parts inside the engine would seize causing the engine to stall, rendering the Insured Vehicle undriveable.

18. Leakage of fluid within the engine compartment may cause a fire to be ignited when the leaked fluid comes into contact with hot surfaces, like an exhaust pipe. The leaked fluid could possibly reach temperature sufficient for it to self-ignite. However, given that the Insured Vehicle was driven for about 15mins to 20mins before Mr Wang had smelt burning smell, the temperature within the engine compartment would have unlikely been able to reach temperature that could result in leaked fluid to self-ignite. Furthermore, heat generated from engine operation would have also been able to dissipate out from the engine compartment whilst the Insured Vehicle was moving (travelling along PIE), unlike in a situation where the traffic is of start stop condition. Fire due to self-igniting fluid leakage would then seem unlikely for this case.

19. Since engine overheating and leakage of fluid were both unlikely the cause of fire, the most probable cause would then be electrical in nature to the wirings of the Insured Vehicle. The rubber insulation of the wires and/or wiring harness may lose its flexibility and become hardened after a prolong period of time. The hardened rubber insulation may then become brittle and break off bits by bits, exposing live wires that may come into contact with each other and/or the metal body of the vehicle, creating sparks that could ignite a fire. Unlike countries with different seasons, the hot local climate enhances the breakdown of any rubber material parts or components of a motor vehicle, in particular for those located within its engine compartment.

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20. For this case, the wirings within the engine compartment of the Insured Vehicle were all completely burned to its bare copper state. Because of this, I was not able to determine the electrical fault had occurred along which wiring(s) within the engine compartment.

21. My checks with both local and international bodies and associations revealed that at the time of writing this report, there is no on-going manufacturer recall of similar make and model vehicle as the Insured Vehicle. There was however a manufacturer recall involving the Insured Vehicle in year 2010. The recall was for issue to the screws for the wing mirrors of the Insured Vehicle. From the records, rectifications to address the issue for this recall was carried out to the Insured Vehicle in year 2011. Since the purpose of the recall does not pose a fire risk; and also given that rectification was carried out, this fire incident to the Insured Vehicle is hence not related to any manufacturer recall. See screenshot below showing the search result 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:		1802E
Vehicle Details		
Vehicle Registration number:		SJM8954H
Make:		SUZUKI
Vehicle Model:		SX4 1.6HB AT
Engine No.:		M16A1444469
Chassis No.:		JSAGYA21S00203790
Recall Details		
1	Recall No.:	R2010110062
	Manufacturer Recall Date:	15 Oct 2010
	Estimated Completion Year of Recall:	2013
	Brief Description (As Provided by Motor Dealer):	Due to absence of pre-coated adhesive (thread lock) on three (3) screws on the outside rear view mirror base, the screw(s) may work loose and cause vibration of mirror itself resulting in the visibility performance decreased.
	Date Rectified:	05 Jan 2011
	For more details, contact CHAMPION MOTORS (1975) PTE. LTD.	
	Hotline Information:	Champion Motors at 66311118

Conclusion

22. For this case, I am of the view that the fire had originated within the engine compartment of the Insured Vehicle. The cause of fire was likely to be of electrical in nature.

23. The information and documents gathered during the course of my investigation did not suggest that the cause of fire was due to poor maintenance and/or recurring electrical issue(s).

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 had also revealed that at the time of writing this report, there is no on-going or previous manufacturer recall of similar make and model vehicle as the Insured Vehicle that may possibly pose a fire risk.

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