LVK Auto Consultants Pte Ltd
Company Registration No. 199607198R
51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108

Your Ref: S7M004KU
Our Ref : CS/AXA17022355/N

4 December 2017

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 EW 8382P ON 1 NOVEMBER 2017

1. We refer to your letter dated 23 November 2017 and the instructions therein.

2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle EW 8382P (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 28 November 2017 at the premises of SME Motor Pte. Ltd. (herein referred to as **"SME"**) located at 1 Kaki Bukit Avenue 6 (Autobay @ Kaki Bukit), #02-15, Singapore 417883.

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

Vehicle Registration No.	: EW 8382P
Make / Model	: HONDA ODYSSEY 2.4A
Chassis No	: JHMRB18506C200740
Year of Registration	: 2006 (March)
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 severely burnt while the interior compartment was observed to be partially burnt and/or melted.

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 bonnet, front grille, front windscreen, front windscreen wipers, right side panel and dashboard, amongst others. The front bonnet of the Insured Vehicle was slightly buckled, likely due to rescue damage. See photos 1 – 7 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 grille, front windscreen and front windscreen wipers were amongst the body parts that were found to have been affected as a result of the fire. The front bonnet of the Insured Vehicle was slightly buckled, likely due to rescue damage.

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 bonnet and right side panel were amongst the body parts that were found to have been affected as a result of the fire.

Photo 3 shows the general view of the front left portion of the Insured Vehicle at the time of our inspection. The front left portion of the Insured Vehicle was relatively unaffected by the fire.

Photo 4 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. Its windscreen, front windscreen wipers, front wiper panel garnish and front windscreen water nozzles were amongst the body parts that were found to have been affected as a result of the fire.

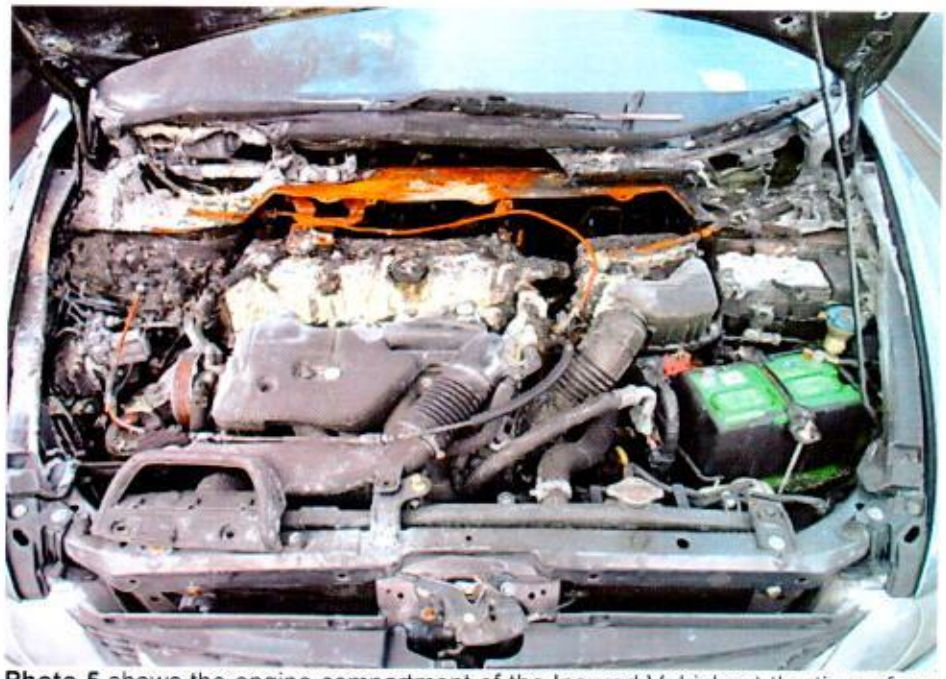

Photo 5 shows the engine compartment of the Insured Vehicle at the time of our inspection. The entire engine compartment of the Insured Vehicle was observed to be severely burnt. Most of the parts inside the engine compartment were found to be burnt and/or melted as a result of the fire.

Photo 6 shows the interior compartment of the Insured Vehicle, which was observed to be partially burnt and/or melted. The dashboard (circled) and front windscreen were amongst the parts that were found to have been partially burnt and/or melted as a result of the fire.

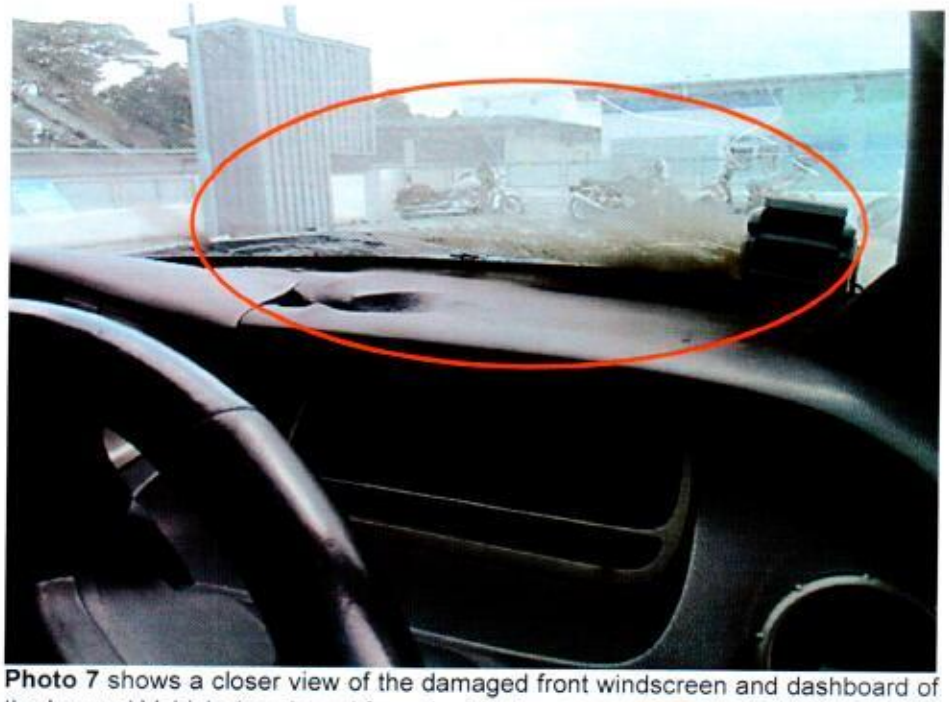

Photo 7 shows a closer view of the damaged front windscreen and dashboard of the Insured Vehicle (as viewed from the interior compartment).

7. At the time of physical inspection of the Insured Vehicle, we had found an additionally fitted electronic and/or electrical component(s) on the Insured Vehicle. It was an in-car flip-down monitor (which had sustained minor fire damage). This fitted component was not the standard type for the Insured Vehicle. See photo 8 below.

Photo 8 shows the in-car flip-down monitor which had sustained minor fire damage. The brand of the in-car flip-down monitor was 'ALPINE' (circled).

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 centre portion 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 centre side of the front bonnet of the Insured Vehicle and also the rust that had developed on the underside of the front bonnet, at the rear centre area.

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 rust that had developed on the underside of the front bonnet, around the rear centre area, is an indication that the rear centre portion of the engine compartment had sustained exposure to prolonged high heat intensity.

10. Furthermore, we found fire extinguisher residue around these areas. In general the location of the fires' origin was determined given that the damage of fire nature was confined to these particular areas on the Insured Vehicle. See photos 9 - 11 below.

Photo 9 shows the burn pattern and whitish burn marks (circled) that were found on the rear centre 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 10 shows the rust (circled) that had developed on the underside of the front bonnet, around the rear centre area. The development of rust is an indication that the area was exposed to prolonged exposure to high heat intensity, which had caused the steel/metal material of the front bonnet to be exposed to natural environmental condition. Hence the fire to the Insured Vehicle can be determined to have originated towards the rear centre portion of the engine compartment.

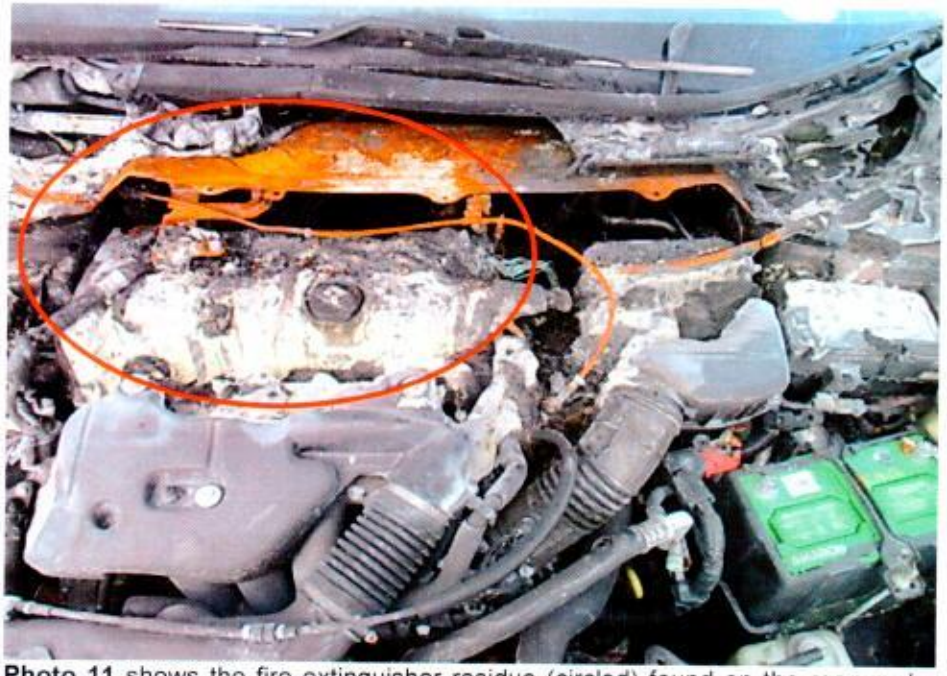

Photo 11 shows the fire extinguisher residue (circled) found on the rear centre portion of the engine compartment of the Insured Vehicle. The nature of fire damage is an indication as to where the fire started.

11. Upon closer examination of the rear centre portion of the engine compartment, which was where the fire to the Insured Vehicle had likely started, we had found traces of greenish residue on several stretches of burnt wirings. The presence of greenish residue indicates internal heating of copper wires, 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. This physical evidence 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 12 - 14 below.

Photo 12 shows the view of the centre portion of the engine compartment which is where the fire to the Insured Vehicle had likely started. We observed greenish residue on the wirings (circled) at the rear centre portion of the engine compartment.

Photo 13 shows a closer view of the greenish residue found on the wirings (circled) at the rear centre portion of the engine compartment. The presence of such greenish residue suggests occurrence of an electrical short circuit.

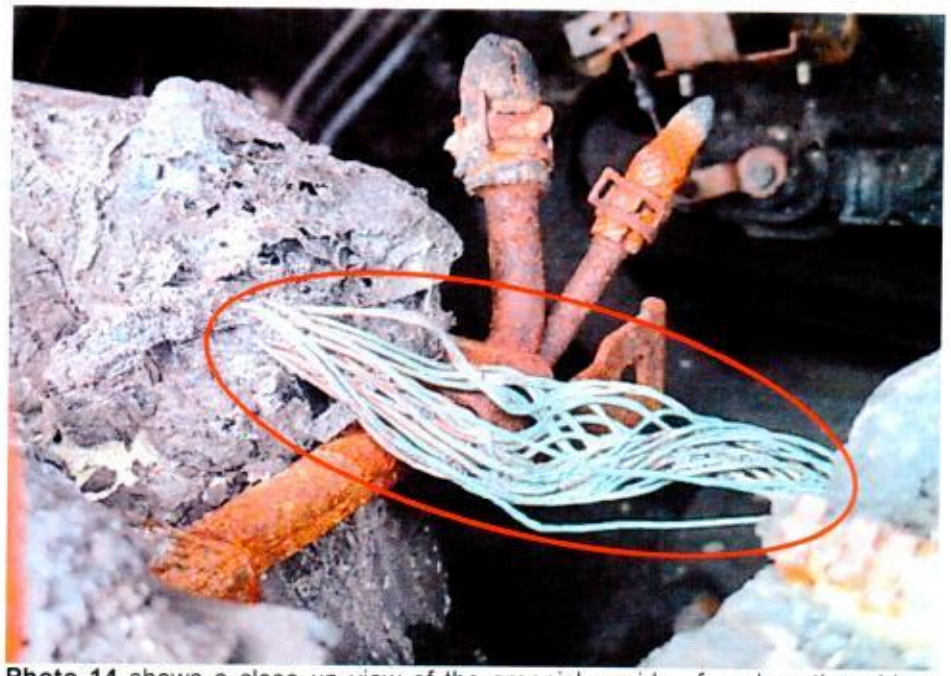

Photo 14 shows a close up view of the greenish residue found on the wirings (circled) at the rear centre portion of the engine compartment. The presence of such greenish residue suggests occurrence of an electrical short circuit.

12. From the Singapore Accident Statement which was made by Mr Jamaludin bin Raja Mohamed (herein referred to as **"Mr Jamal"**), we note that the fire to the Insured Vehicle had started at a time when he was driving along the expressway. He was alerted of the fire when he saw smoke emitting from the engine compartment.

13. We managed to speak to Mr Jamal on 30 November 2017 where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.

14. According to Mr Jamal, at about 1830hrs on 1 November 2017, he alongside his wife was travelling on the BKE (SLE). They had just returned from Johor, Malaysia. Suddenly he saw white smoke emitting from the rear portion of the front bonnet. He immediately pulled over the Insured Vehicle along the road shoulder before the Woodlands Avenue 2 exit. He switched off the engine and released the front bonnet hatch. He then got out of the Insured Vehicle and tried to open the front bonnet but it was jammed. That was when he noticed flames from behind the right front wheel.

15. Mr Jamal mentioned that 2 motorists came to their aid and tried to douse the fire with water but to no avail. The police, EMAS Recovery personnel and SCDF arrived in 15 minutes. Firefighters pried open the front bonnet with a hydraulic spreader tool. The fire was extinguished in 10 minutes. EMAS Recovery personnel told Mr Jamal that they were not authorised to tow the Insured Vehicle out of the expressway to the nearest open carpark as it was a fire case. Hence Mr Jamal called the AXA hotline for assistance and to make towing arrangements.

16. The tow truck arrived shortly after the fire was put out but the Insured Vehicle could not be towed as the SCDF Fire Investigator had not arrived to conduct preliminary investigations. Meanwhile the police took Mr Jamals' statement. At around 2000 hours, the SCDF Fire Investigator allowed Mr Jamal to tow the Insured Vehicle. The Insured Vehicle was towed to SME. Mr Jamal made an insurance report at SME only on 22 November 2017.

17. We asked Mr Jamal what was the reason for the delay in reporting. He informed us that he was unaware that an insurance report was required as he thought that the police statement was sufficient. He only realized that he needed to make an insurance report after he called the AXA Insurance hotline for a follow up of the insurance claim as he had not received any updates for 2 weeks.

18. With regard to the history of the Insured Vehicle, we were able to gather from Mr Jamal that the Insured Vehicle was purchased second-hand in 2015. He is the registered owner and only driver of the Insured Vehicle. The COE of the Insured Vehicle was also recently extended for another 10 years in March 2016 by Mr Jamal. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle hence his decision to renew the COE of the Insured Vehicle.

19. We asked Mr Jamal regarding the in-car flip-down monitor that was fitted onto the Insured Vehicle. He mentioned that the in-car flip-down monitor came with the Insured Vehicle when he purchased it.

20. Pertaining to the maintenance aspect, Mr Jamal sends the Insured Vehicle for periodic servicing. He had the Insured Vehicle serviced while he was in Johor on the day of the incident.

LKK Auto Consultants Pte Ltd

Company Registration No. 199607198R

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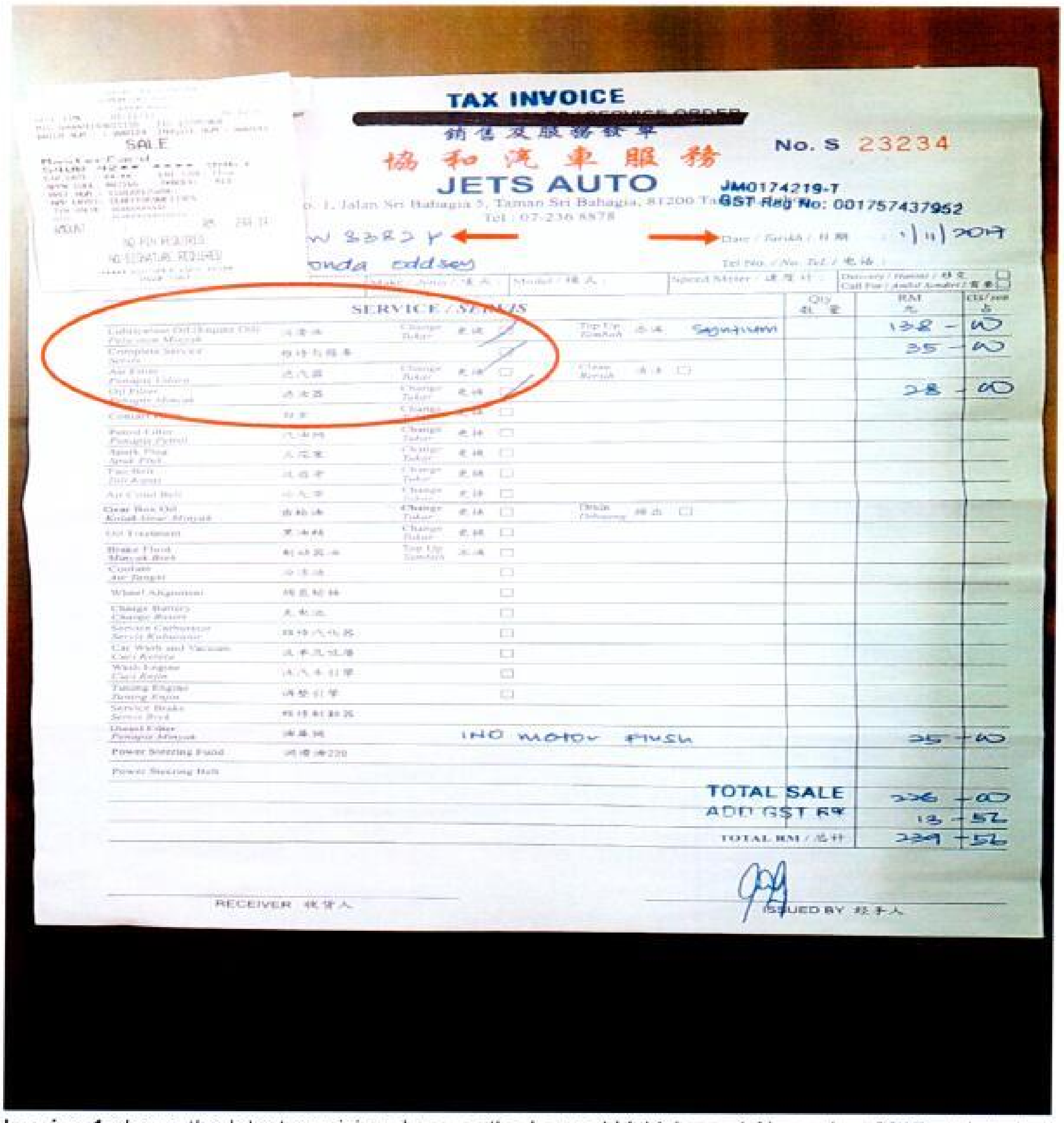
21. During the course of our investigations, we were also able to obtain from Mr Jamal, a document relating to the latest servicing of the Insured Vehicle done at Jets Auto (herein referred to as "**Jets**") located at No. 1, Jalan Sri Bahagia 5, Taman Sri Bahagia, 81200 Tampoi, Johor, Malaysia on 1 November 2017. The servicing package included changing of engine oil, oil filter, air filter and a motor flush. Refer to invoice 1 below.



TAX INVOICE

[redacted]

销售及服务发单

協和汽車服務

JETS AUTO

No. S 23234

JM0174219-T

GST Reg No: 001757437952

No. 1, Jalan Sri Bahagia 5, Taman Sri Bahagia, 81200 Tampoi

Tel : 07-236 8878

W 3382 Y

Honda oddsey

Date / Tarikh / 日期 : 1/11/2017

SERVICE / SERVIS					RM
Lubrication Oil / Engine Oil / Pelincir Minyak	Change / Tukar	Top Up / Tambah	Sagantium		138 - 00
Complete Service / Servis					35 - 00
Air Filter / Penapis Udara	Change / Tukar	Clean / Bersih			
Oil Filter / Penapis Minyak	Change / Tukar				28 - 00
Diesel Filter / Penapis Minyak			1 NO motor flush		35 - 00
				TOTAL SALE	226 - 00
				ADD GST 6%	13 - 56
				TOTAL RM / 总计	239 - 56

RECEIVER 收货人

ISSUED BY 经手人

Invoice 1 shows the latest servicing done on the Insured Vehicle on 1 November 2017 at Jets (red arrows). The servicing package included the changing of engine oil, oil filter, air filter and a motor flush.

22. Mr Jamal mentioned that after the servicing was done, he had not experienced any mechanical or electrical problems with the Insured Vehicle till the incident occurred. He mentioned that there were neither warning lights displayed nor was there an abnormal rise in temperature of the Insured Vehicle when he was driving the Insured Vehicle on the day of the incident.

Incident Scene Photographs

23. Although we could not visit the site where the incident happened, we managed to obtain several photographs which were taken by Mr Jamal at the incident location. The photographs were taken during and after the fire to the Insured Vehicle were extinguished.

24. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Jamal. 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 road shoulder where the Insured Vehicle was positioned. See photos 15 - 19 below.

Photo 15 shows the arrival of the SCDF to the incident location. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Jamal, which is he had pulled over the Insured Vehicle along the road shoulder of the BKE (SLE) before the Woodlands Avenue 2 exit (circled).

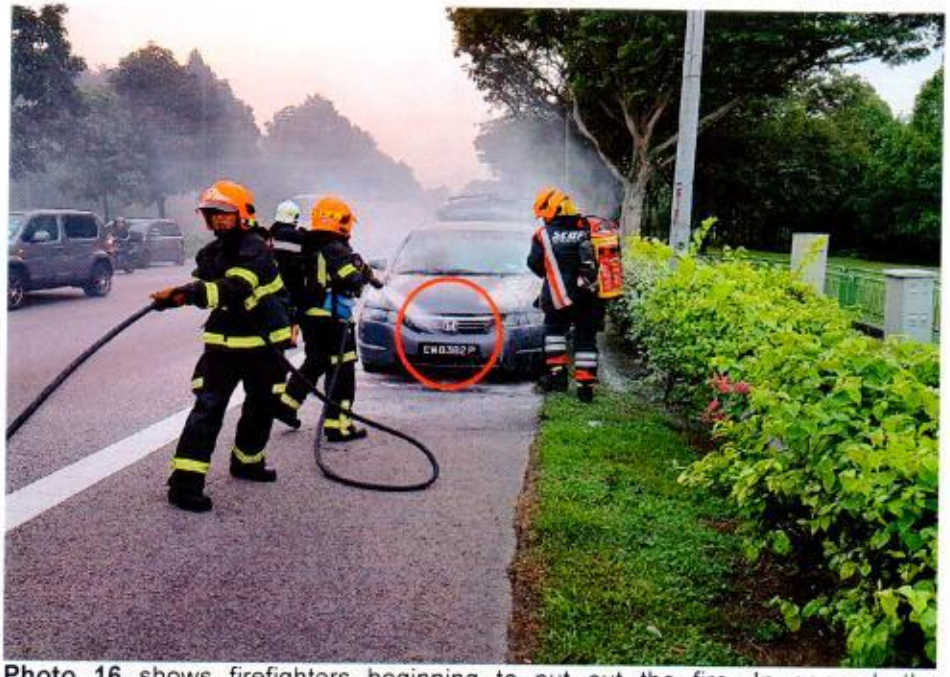


Photo 16 shows firefighters beginning to put out the fire. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Jamal, which is the front bonnet was jammed and could not be opened (circled).

Photo 17 shows firefighters spraying the engine bay. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Jamal, which is the front bonnet was pried open to gain access to the engine bay (circled).

Photo 18 shows the firefighters making sure that the fire had been completely extinguished. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Jamal, which is the police and EMAS Recovery personnel (circled) were present at the incident location together with the SCDF.

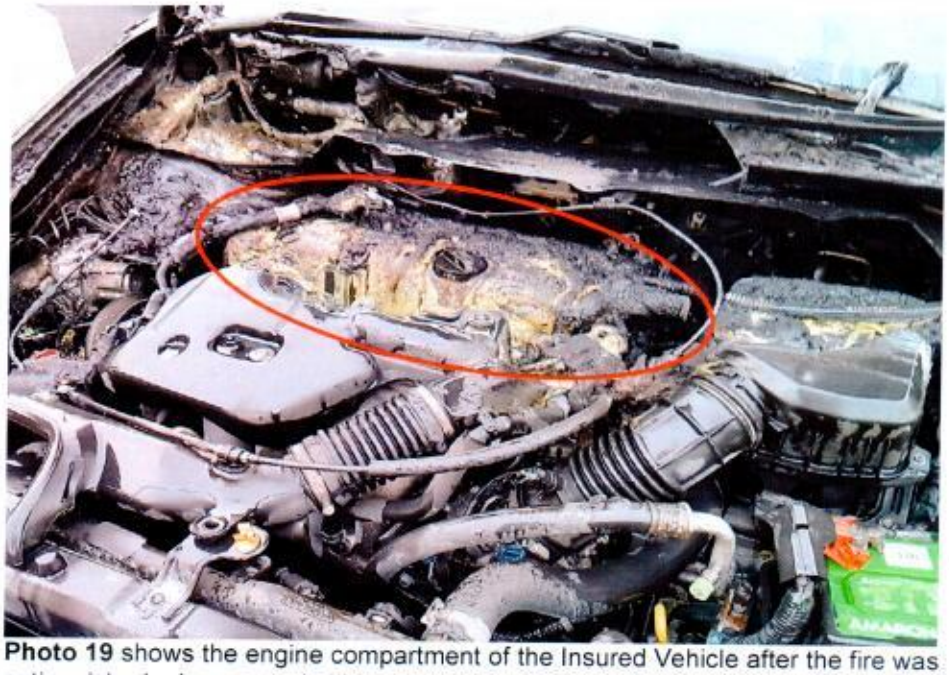


Photo 19 shows the engine compartment of the Insured Vehicle after the fire was extinguished. In general, the extensive damages sustained and the fire extinguisher residue found on the rear centre portion (circled) had corresponded to the events that were related to us by Mr Jamal, which is the fire started from the engine compartment

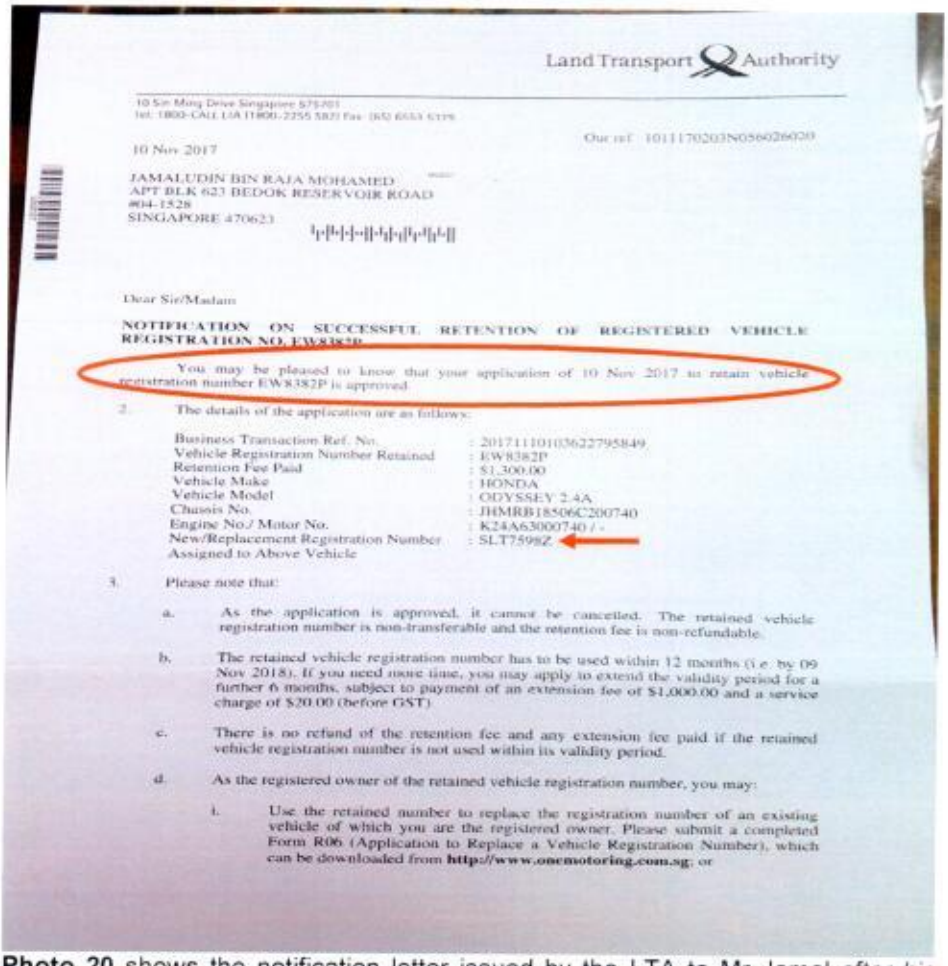
25. Based on the vehicle service record invoice provided, we are of the opinion that it is unlikely that the fire could have been caused by poor maintenance of the Insured Vehicle.

26. Given the circumstances of the incident as reported, the possibility of the cause of fire to the Insured Vehicle being due to engine overheating would seem unlikely as Mr Jamal had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle when he was driving on that day. Moreover, an overheated engine would have caused the Insured Vehicle to stall. However in this case, Mr Jamal was the one who noticed white smoke emitting from the rear portion of the front bonnet while he was driving and stopped the Insured Vehicle. Therefore, we are of the opinion that the fire was not caused by an overheated engine.

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 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 positioned. The location of where the Insured Vehicle was positioned 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 11 above.

29. During the course of our investigations, we noted that the Insured Vehicle bore a bid vehicle registration number owned by Mr Jamal at the time the incident occurred. As of 10 November 2017 he was issued a notification letter by the LTA after his application to retain vehicle registration number EW 8382P was approved. The LTA issued a replacement registration number for the Insured Vehicle; SLT 7598Z. We were able to obtain a copy of LTA notification letter from Mr Jamal. See photo 20 below.



Land Transport Authority

10 Sin Ming Drive Singapore 575701
Tel: 1800-CALL LTA (1800-2255 582) Fax: (65) 6553 6179

Our ref: 101117020 3N0560260 20

10 Nov 2017

JAMALUDIN BIN RAJA MOHAMED
APT BLK 623 BEDOK RESERVOIR ROAD
#04-1528
SINGAPORE 470623

Dear Sir/Madam

NOTIFICATION ON SUCCESSFUL RETENTION OF REGISTERED VEHICLE REGISTRATION NO. EW8382P

You may be pleased to know that your application of 10 Nov 2017 to retain vehicle registration number EW8382P is approved.

2. The details of the application are as follows:

Business Transaction Ref. No.	: 20171110103622795849
Vehicle Registration Number Retained	: EW8382P
Retention Fee Paid	: $1,300.00
Vehicle Make	: HONDA
Vehicle Model	: ODYSSEY 2.4A
Chassis No.	: JHMRB18506C200740
Engine No./ Motor No.	: K24A63000740 / -
New/Replacement Registration Number Assigned to Above Vehicle	: SLT7598Z

3. Please note that:

a. As the application is approved, it cannot be cancelled. The retained vehicle registration number is non-transferable and the retention fee is non-refundable.

b. The retained vehicle registration number has to be used within 12 months (i.e. by 09 Nov 2018). If you need more time, you may apply to extend the validity period for a further 6 months, subject to payment of an extension fee of $1,000.00 and a service charge of $20.00 (before GST).

c. There is no refund of the retention fee and any extension fee paid if the retained vehicle registration number is not used within its validity period.

d. As the registered owner of the retained vehicle registration number, you may:

i. Use the retained number to replace the registration number of an existing vehicle of which you are the registered owner. Please submit a completed Form R06 (Application to Replace a Vehicle Registration Number), which can be downloaded from **http://www.onemotoring.com.sg**; or

Photo 20 shows the notification letter issued by the LTA to Mr Jamal after his application to retain vehicle registration number EW 8382P was approved on 10 November 2017 (circled). The LTA issued a replacement registration number for the Insured Vehicle; SLT 7598Z (arrowed).

30. Our checks with both local and international bodies and associations had revealed that at the time of writing this report, there were 2 manufacturer recalls for the:-

a) power steering pump bolt on 13 March 2007 which was rectified on 28 August 2007;

b) Takata airbag on 9 June 2016 which was rectified on 6 February 2017. 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:	6599Z

Vehicle Details

Vehicle Registration number:	SLT7598Z
Make:	HONDA
Vehicle Model:	ODYSSEY 2.4A
Engine No.:	K24A63000740
Chassis No.:	JHMRB18506C200740

Recall Details

1

Recall No.:	R2016070264
Manufacturer Recall Date:	09 Jun 2016
Estimated Completion Year of Recall:	2020
Brief Description (As Provided by Motor Dealer):	According to the equipment defect notifications filed by Takata, the propellant wafers in some of the subject inflators may degrade over time, which could lead to over-aggressive combustion in the event the airbag is activated. In the event of an inflator rupture, metal fragments could pass through the airbag cushion material possible causing serious injury or fatality to vehicle occupants.
Date Rectified:	06 Feb 2017

For more details, contact KAH MOTOR COMPANY SDN. BERHAD.

2

Hotline Information:	KAH MOTOR CO SDN BHD at 68413838
Recall No.:	R2007040003
Manufacturer Recall Date:	13 Mar 2007
Estimated Completion Year of Recall:	2017
Brief Description (As Provided by Motor Dealer):	Due to lack of tightening force of Power Steering Pump's bolt, the bolt gets excessive stress and breaks if this is repeatedly used. However in worst case the belt may come off causing steering heavy.
Date Rectified:	28 Aug 2007

For more details, contact KAH MOTOR COMPANY SDN. BERHAD.

Hotline Information: KAH MOTOR CO SDN BHD at 68413838

OK

Conclusion

31. Having investigated and technically analysed the damages 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 wirings inside the engine compartment, somewhere around the rear centre portion. The wirings were original factory wirings of the Insured Vehicle.

32. 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.

33. We found the Insured Vehicle to be fitted with an in-car flip-down monitor. The abovementioned electrical/electronic component does not require prior approval from LTA.

34. Although the in-car flip-down monitor fitted on the Insured Vehicle was not the standard type for the Insured Vehicle, we are of the view that this part did not cause and/or contribute to the fire incident.

35. Our investigations had also revealed that at the time of writing this report, there were 2 manufacturer recall campaigns in 2007 and 2016 respectively which had involved the Insured Vehicle do not possess a fire risk to the Insured Vehicle. Moreover, they had been rectified before the incident occurred. Hence the recalls can be considered to be not related to this fire incident.

36. 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.

Muhd Nazril
Technical Investigator

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