LKK 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: OD/613910
Our Ref : CS/MSG19021666/P

30th December 2019

M/s MSIG Insurance (Singapore) Pte. Ltd .
4 Shenton Way #21-01
SGX Tower
Singapore 068807
(Motor Claims Department)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE SLX 1805U ON 9th DECEMBER 2019

1. We refer to your letter dated 9th December 2019 and the instructions therein.

2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SLX 1805U (herein referred to as **"Insured Vehicle"**) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 10th December 2019 at the premises of Vin's Auto Pte Ltd (herein referred to as **"Vin's Auto"**) located at Block 160, Sin Ming drive #08-09, Singapore 575722.

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

Vehicle Registration No.	: SLX 1805U
Make / Model	: AUDI R8 4.2 FSI QU R-TRONIC
Chassis No	: WUAZZZ4268N006237
Year of Registration	: August 2006
Mileage	: 81,245KM

5. The Insured Vehicle was observed to have sustained severe fire damage. Its engine compartment was completely burnt and interior compartment had sustained heat and smoke damage. Rust had accumulated around the engine compartment of the Insured Vehicle as a result of exposure to environmental condition for a period of time. See photos 1 – 10 below.

Photo 1 shows the rear portion of the Insured Vehicle, which was observed to be unaffected by the fire.

Photo 2 shows the right body of the Insured Vehicle, which was observed to be unaffected by the fire.

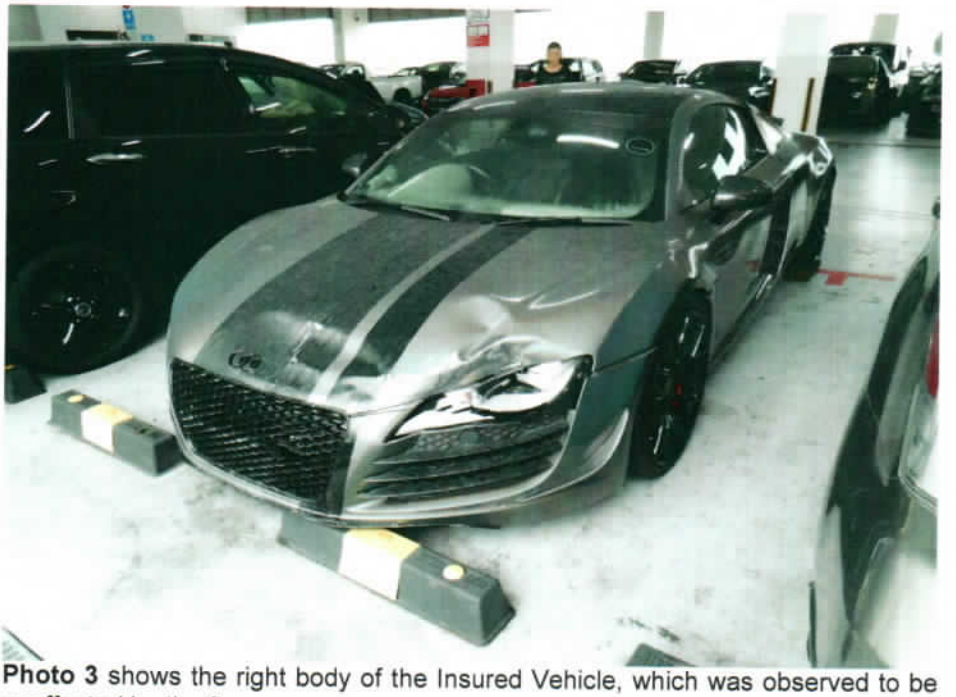


Photo 3 shows the right body of the Insured Vehicle, which was observed to be unaffected by the fire.

Photo 4 shows the general view of the front portion of the Insured Vehicle, it was unaffected by the fire however its front bonnet and front left headlamp was damaged by a collision accident which was prior to the fire incident.

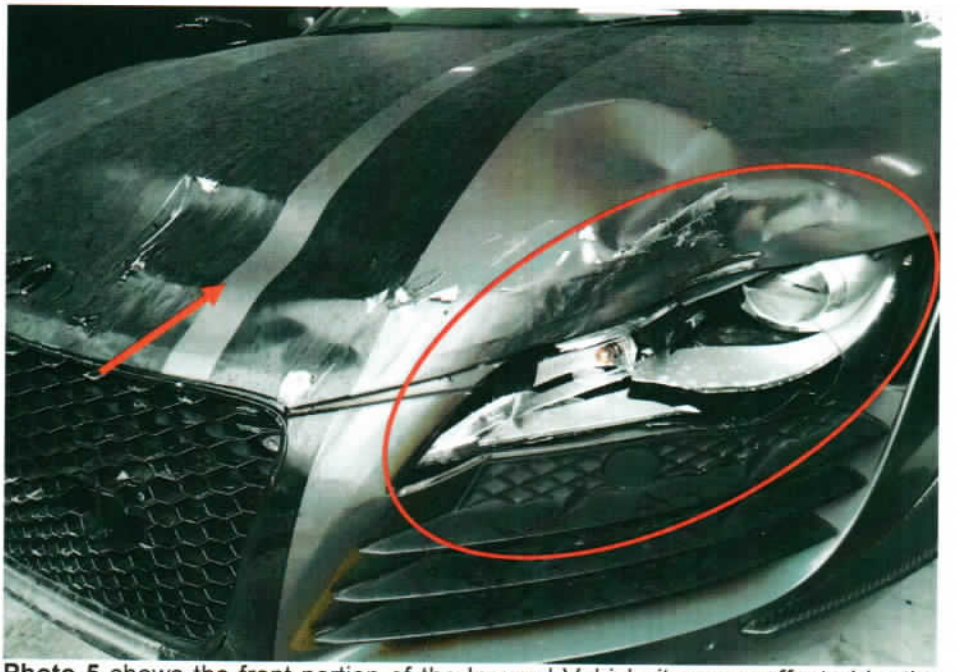


Photo 5 shows the front portion of the Insured Vehicle it was unaffected by the fire however its front bonnet (arrowed) and front left headlamp (circled) was damaged by a collision accident which was prior to the fire incident. (Refer to photo 17-19 below)

Photo 6 shows the general view of the engine compartment of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained severe fire damage. Its engine cover and engine compartment was completely burnt. Rust had accumulated around the engine compartment of the Insured Vehicle as a result of exposure to environmental condition for a period of time.

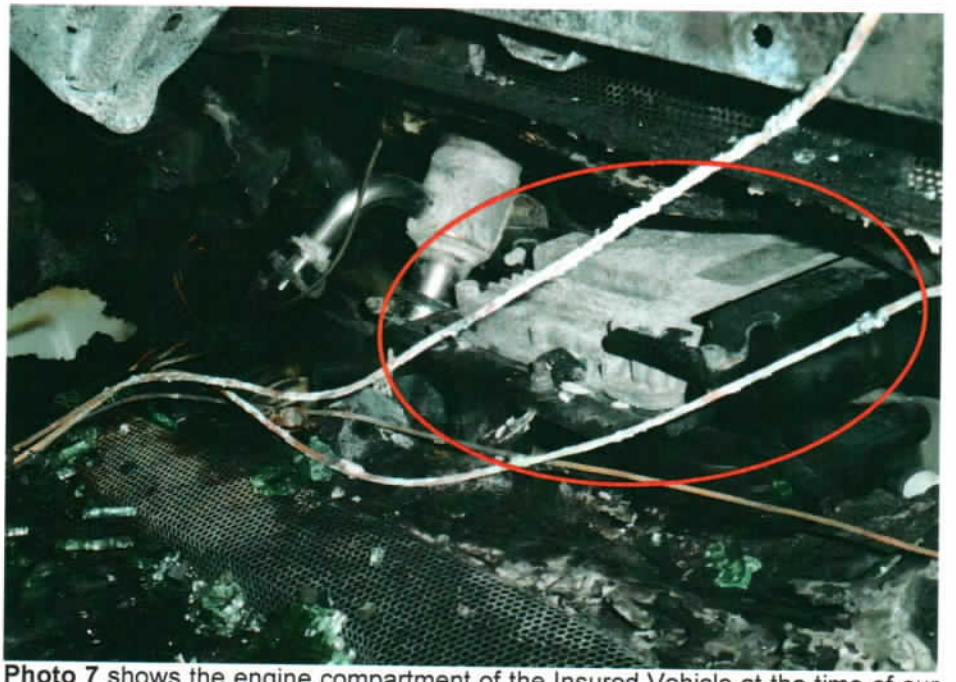


Photo 7 shows the engine compartment of the Insured Vehicle at the time of our inspection. The engine ecu (circled) was observed to be severely burnt. Most of the parts inside the engine compartment were found to be burnt and/or melted as a result of the fire.

Photo 8 shows the engine compartment of the Insured Vehicle at the time of our inspection. The throttle body (circled) and various air hoses (arrowed) was observed to be burnt and/or melted as a result of the fire.

Photo 9 shows the interior view from the right side of the Insured Vehicle at the time of our inspection. The interior fittings of the Insured Vehicle were observed to suffer smoke and heat damage as a result of the fire.

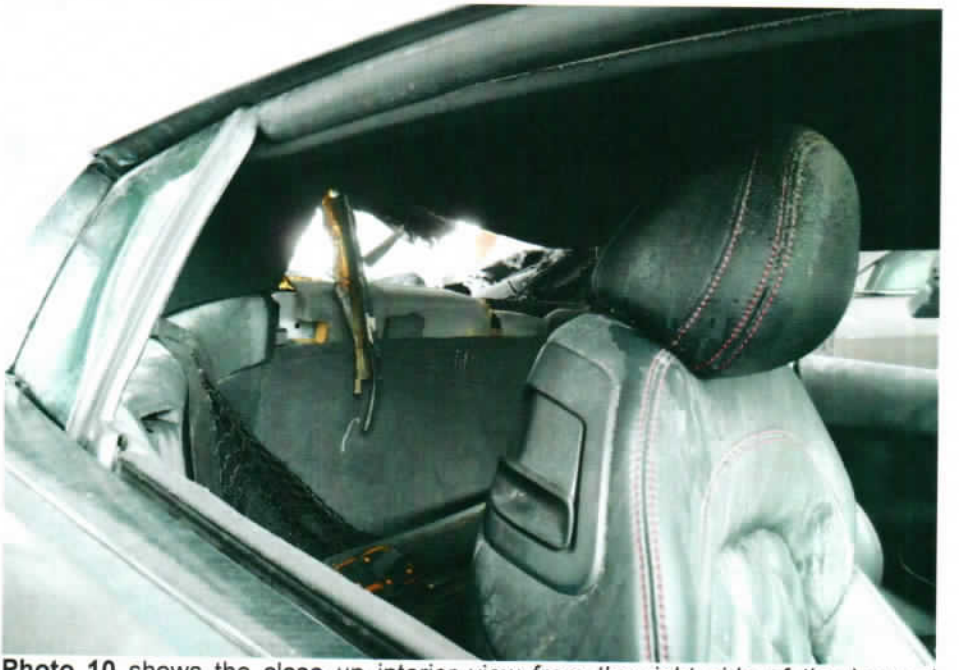


Photo 10 shows the close up interior view from the right side of the Insured Vehicle at the time of our inspection. The rear sight glass, rear seat compartment fittings and the seats material of the Insured Vehicle were observed to suffer smoke and heat damage as a result of the fire.

7. At the time of inspection of the Insured Vehicle, we found an additionally fitted an aftermarket audio head unit and an electronic throttle pedal controller in the Insured Vehicle drivers cabin See photo 11 and 12 below

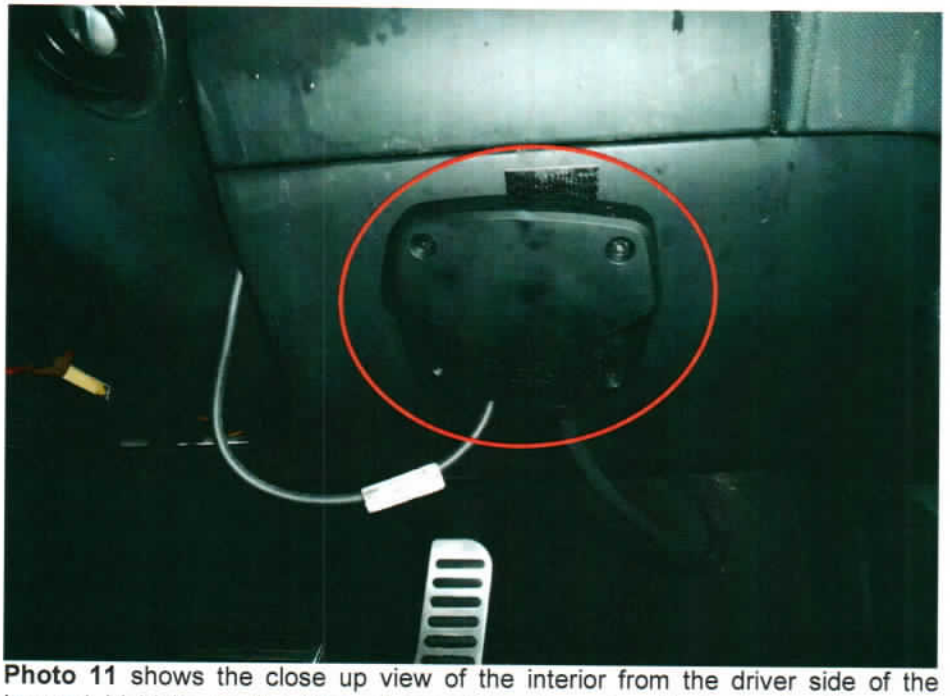


Photo 11 shows the close up view of the interior from the driver side of the Insured Vehicle at the time of our inspection. An electronic throttle pedal controller (circled) was observed to be installed.

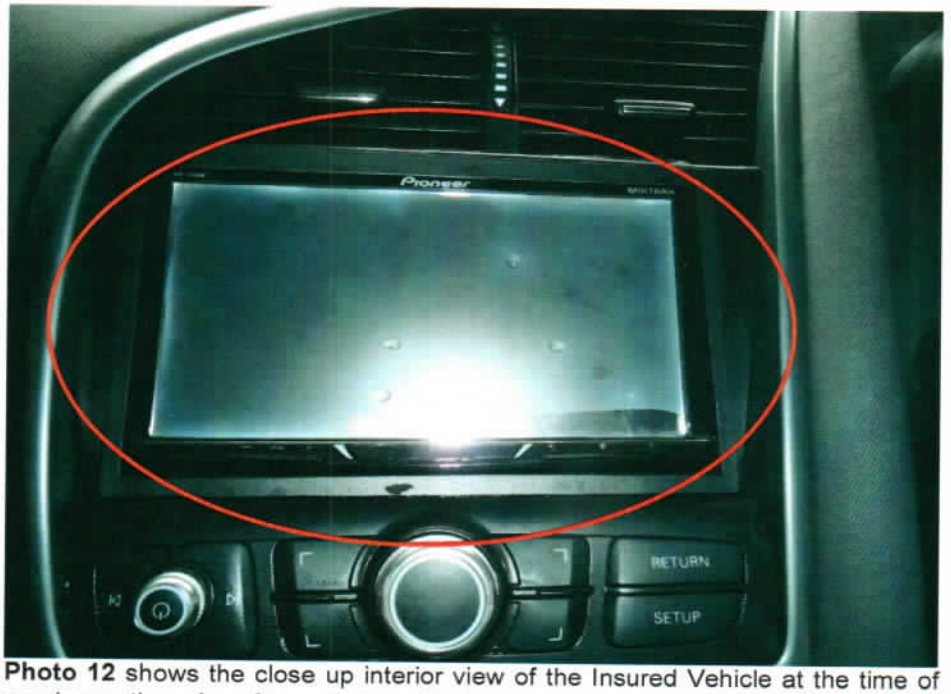


Photo 12 shows the close up interior view of the Insured Vehicle at the time of our inspection. An aftermarket audio head unit (circled) was observed to be installed.

Investigation and Technical Analysis

8. From the Singapore Accident Statement, which was made by Mr Brendan-James Timothy Henson (herein referred to as **"Mr Brendan"**); we note that the fire to the Insured Vehicle had started at a time while he was driving. Mr Brendan was first alerted of the fire by upon looking at the rear view mirror of the Insured Vehicle and spotted flames arising.

9. We managed to speak to Mr Brendan on 17th December 2019 where we were 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 Brendan, at about 1110hrs on 9th December 2019, he was travelling from his house at 33 Luxus hill avenue to Sing Ming Auto City for accident reporting for the Insured Vehicle which was involved in a previous accident on 7th December 2019 which had result in the damaged to the front left portion's headlamp and front bonnet.

11. Prior to the fire, Mr Brendan was travelling along Ang Mo Kio Avenue 6 half to his destination. He was driving at a low speed as it was raining, while driving he smelled a little petrol smell inside the cabin of the Insured Vehicle but carried on driving not thinking much of it. A short while later, he first heard sounds of flames catching from the engine compartment which was located behind the driver's cabin. He looked through the rear view mirror and saw flames engulfing right behind him. Subsequently, he pulled the Insured Vehicle to the side of the road, shut of the engine ignition, exited the Insured Vehicle and proceeded to the bus stop nearby and requested SCDF assistance.

12. While waiting for SCDF arrival, two individuals from the nearby petrol station came over with to fire extinguishers and attempted to extinguish the flames at the engine compartment however; the flames were too strong. SCDF arrived shortly after and the fire was extinguished within 5 mins upon arrival. Mr Brendan was given a case number after his statement taken by SPF officers.

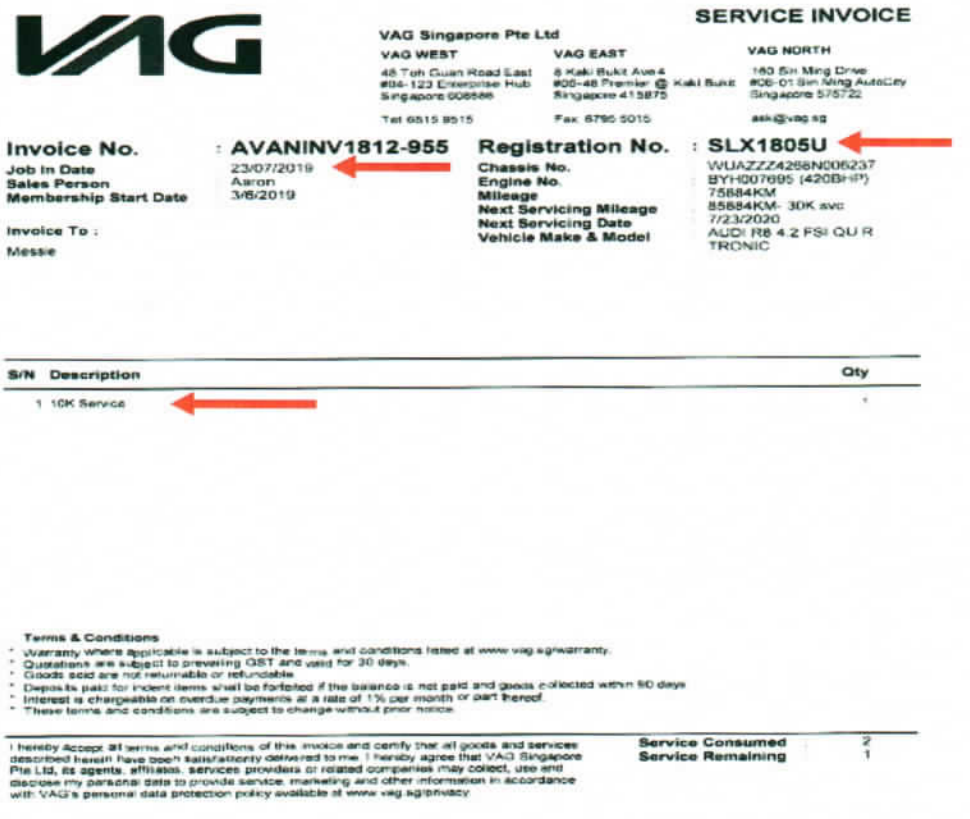
13. SCDF arrived shortly and the fire was extinguished within 20 mins. Mr Brendan was given a case number after his statement was taken by the police.

14. Mr Brendan subsequently contacted his Insurance company (MSIG) and made towing arrangements on the same day and the tow truck arrived within 30mins and the Insured Vehicle was towed to Vin's Auto Workshop and made an insurance report on the same day at 1335 hours.

15. Mr Brendan mentioned that he had not experienced any mechanical or electrical/electronic problems with the Insured Vehicle till the day of the incident. He also mentioned that there were neither warning lights displayed nor was there an abnormal rise in temperature throughout the period the Insured Vehicle and when driven, prior to the fire.

16. With regards to the history of the Insured Vehicle, we were able to gather from Mr Brendan that the Insured Vehicle was purchased pre-owned. He is the registered owner of the Insured Vehicle. Mr Brendan informed us that he is the sole driver of the Insured vehicle since the day he bought the Insured Vehicle 2 years ago.

17. Pertaining to the maintenance aspect, Mr Brendan sends the Insured Vehicle for periodical servicing. He provided us with his latest servicing record, inspection certification and there was no major overhaul done or modifications done to the Insured Vehicle.



VAG

SERVICE INVOICE

VAG Singapore Pte Ltd

VAG WEST	VAG EAST	VAG NORTH
48 Toh Guan Road East #04-123 Enterprise Hub Singapore 608586	8 Kaki Bukit Ave 4 #05-48 Premier @ Kaki Bukit Singapore 415875	160 Sin Ming Drive #08-01 Sin Ming AutoCity Singapore 575722
Tel: 6515 8515	Fax: 6795 5015	ask@vag.sg

Invoice No. : AVANINV1812-955
Job In Date 23/07/2019
Sales Person Aaron
Membership Start Date 3/6/2019

Invoice To :
Messie

Registration No. : SLX1805U
Chassis No. WUAZZZ4268N006237
Engine No. BYH007695 (420BHP)
Mileage 75884KM
Next Servicing Mileage 85884KM- 30K svc
Next Servicing Date 7/23/2020
Vehicle Make & Model AUDI R8 4.2 FSI QU R TRONIC

S/N	Description	Qty
1	10K Service	1

Terms & Conditions
- Warranty where applicable is subject to the terms and conditions listed at www.vag.sg/warranty.
- Quotations are subject to prevailing GST and valid for 30 days.
- Goods sold are not returnable or refundable.
- Deposits paid for indent items shall be forfeited if the balance is not paid and goods collected within 90 days.
- Interest is chargeable on overdue payments at a rate of 1% per month or part thereof.
- These terms and conditions are subject to change without prior notice.

I hereby Accept all terms and conditions of this invoice and certify that all goods and services described herein have been satisfactorily delivered to me. I hereby agree that VAG Singapore Pte Ltd, its agents, affiliates, services providers or related companies may collect, use and disclose my personal data to provide service, marketing and other information in accordance with VAG's personal data protection policy available at www.vag.sg/privacy.

Service Consumed 2
Service Remaining 1

LKK 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

No SM90809862

Land Transport Authority

THE ROAD TRAFFIC ACT (CHAPTER 276)

This is to certify that the motor vehicle with registration no: SLX1805U was examined under section 90 of the Road Traffic Act and that at the date of the examination the prescribed statutory requirements were complied with in relation to the vehicle.

VICOM INSPECTION CENTRE PTE LTD

06/Jun/2019
Date of issue

Authorised signatory

KEEP THIS CERTIFICATE SAFELY

CHECK carefully that the particulars specified above are correct. A test certificate showing any alteration should not be issued or accepted as this may delay the renewal of a vehicle licence.

For the purpose of renewing road tax, this Certificate must be presented within **3 MONTHS** from the date of issue.

A test certificate should not be accepted as evidence of the satisfactory mechanical condition of a vehicle offered for sale.

18. For this particular case, the fire appears to have originated from the middle portion of the engine compartment of the Insured Vehicle. This can be determined from the burn pattern of the various components in the engine compartment, which were observed to have been partly melted and burn from the high heat intensity and the high heat intensity burn marks (whitish burn marks) found on the metal parts around the Insured Vehicle. Rust had also developed on these metal parts.

19. 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 metal body is an indication that roof portion of the Insured Vehicle had sustained exposure to prolonged high heat intensity. See photos 13 & 14 below.

Photo 13 shows the roof and the surrounding of the middle portion (arrowed) of the Insured Vehicle at the time of our inspection. The high heat intensity burn marks (whitish burn marks) and rust that had development found on the exterior surface of the roof metal body and the surrounding area indicates that the fire had originated from the engine compartment of the Insured Vehicle.

Photo 14 shows the roof and the surrounding of the middle portion (circled) of the Insured Vehicle at the time of our inspection. The high heat intensity burn marks (whitish burn marks) and rust that had development found on the exterior surface of the roof metal body and the surrounding area indicates that the fire had originated from the engine compartment of the Insured Vehicle.

20. Upon closer examination of the engine compartment of the Insured Vehicle which was where the fire had started, we had found high heat intensity burn marks (whitish burn marks) and rust development. Traces of greenish residue and fluid were found on parts of the engine and on the ground at the time of inspection leading from the fuel hoses. The fuel hoses were original hoses fitting from manufacturer.

21. The presence of high heart intensity burn marks (whitish burn marks), greenish residue around the fuel hose area and strong fuel smell upon inspection of the Insured Vehicle would suggest that there was fuel leakage from the fuel hoses that came into contact with hot surface of the running engine compartments, which had caused the fire to be started and the fire spread around the engine compartment of the Insured Vehicle. The greenish residue around the area is normally unburned fuel additives left behind from the fuel leakage. This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to fluid contact onto hot surfaces. See photos 15 - 16 below.

Photo 15 shows the general view of the engine compartment portion of the Insured Vehicle where the fire had likely started. A broken fuel hose, greenish residue was found on the engine components and whitish burn marks due to high heat intensity burn was observed on the body panel of the Insured vehicle (circled)

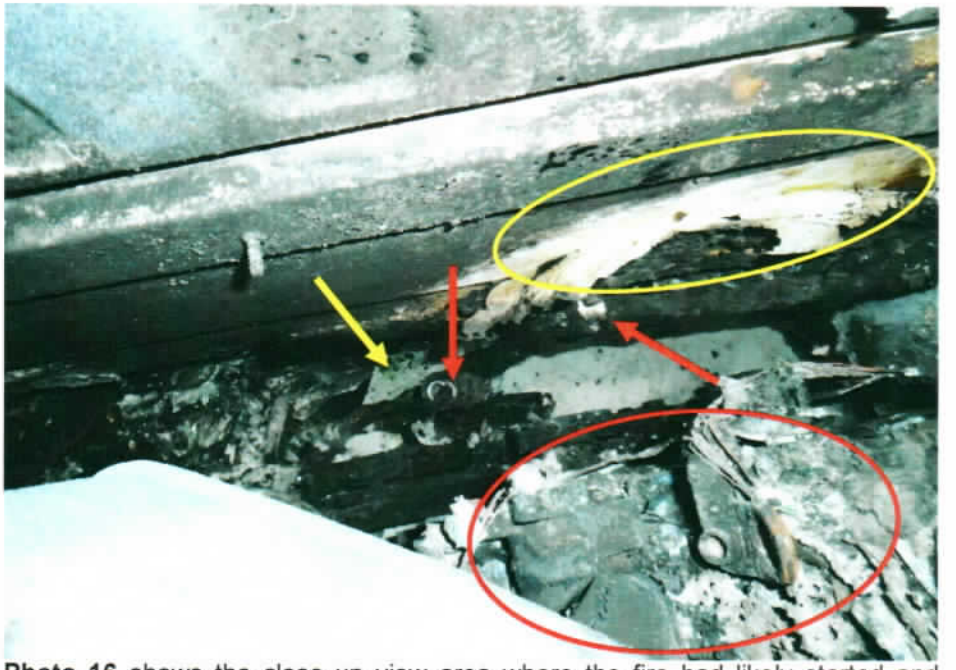


Photo 16 shows the close up view area where the fire had likely started and spread around the engine compartment. Observed was a broken fuel hose (red arrow) which caused a fuel leakage onto and around the hot surface of the running engine components which was likely the caused of fire and left over greenish fuel additives residue (red circle) around the area and on the floor (yellow arrow). The fire's high heat intensity burn had also resulted in (whitish burn marks) on the body panel (yellow circle) of the Insured Vehicle.

Incident Scene Photographs

22. During the course of our investigations, we were able to obtain coloured photographs showing the Insured Vehicle that was involved in the previous collision accident prior to the fire incident. And the scene photos of the fire incident at the incident location and after extinguished by SCDF personnel. These were provided to us by Mr Brendan.

23. Our examination of these photographs revealed the collision incident prior to the fire and that the fire had started from the of the engine compartment located in the middle of the Insured Vehicle. The photographs had also showed the Insured Vehicle on fire and similar extent of damage and burn pattern to the Insured Vehicle as per what we had observed during our physical inspection of the Insured Vehicle. Apart from the aforesaid, it was also observed that the signal lights and day lights were still lighted up during and after the fire. See photos 17 - 22 below which were provided to us by Mr Brendan.

Photo 17 shows collision damage at the rear right bumper on the third party vehicle, which is consistent to the damage sustained on the front left portion of Mr. Brendan's Insured Vehicle.

Photo 18 shows collision damage at the front left portion (circled) on the Insured Vehicle, which is consistent to the damage sustained on the rear right portion of the third party vehicle.

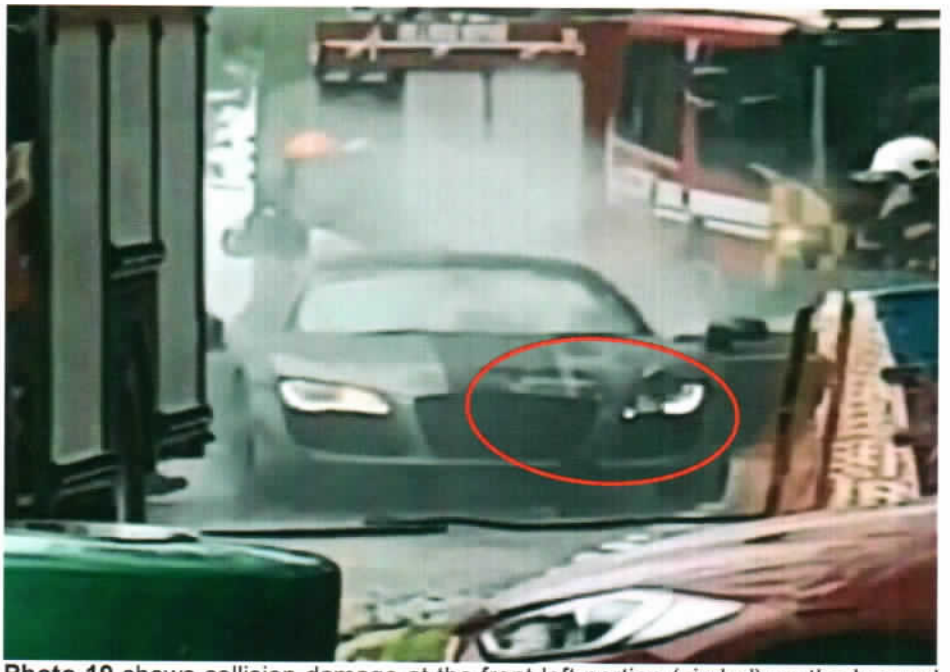


Photo 19 shows collision damage at the front left portion (circled) on the Insured Vehicle at the fire scene, which is consistent to the damage sustained on the rear right portion of the third party vehicle. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Brendan.

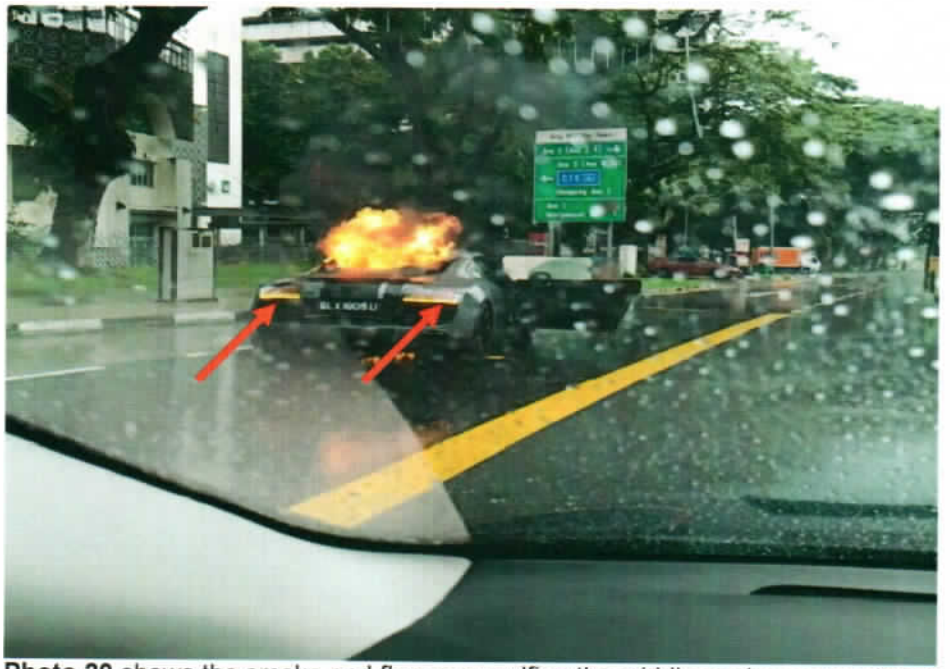


Photo 20 shows the smoke and flames engulfing the middle engine compartment of the Insured Vehicle before the arrival of the SCDF. From the photograph, it was also observed that the signal lights (arrowed) were still lighted up during the fire.

Photo 21 shows the Insured Vehicle at the incident location after the fire was extinguished by SCDF personnel. Firefighters can be seen to be extinguishing the fire and inspecting the extent of damage. The day lights (arrowed) were still lighted up after the fire was extinguished.

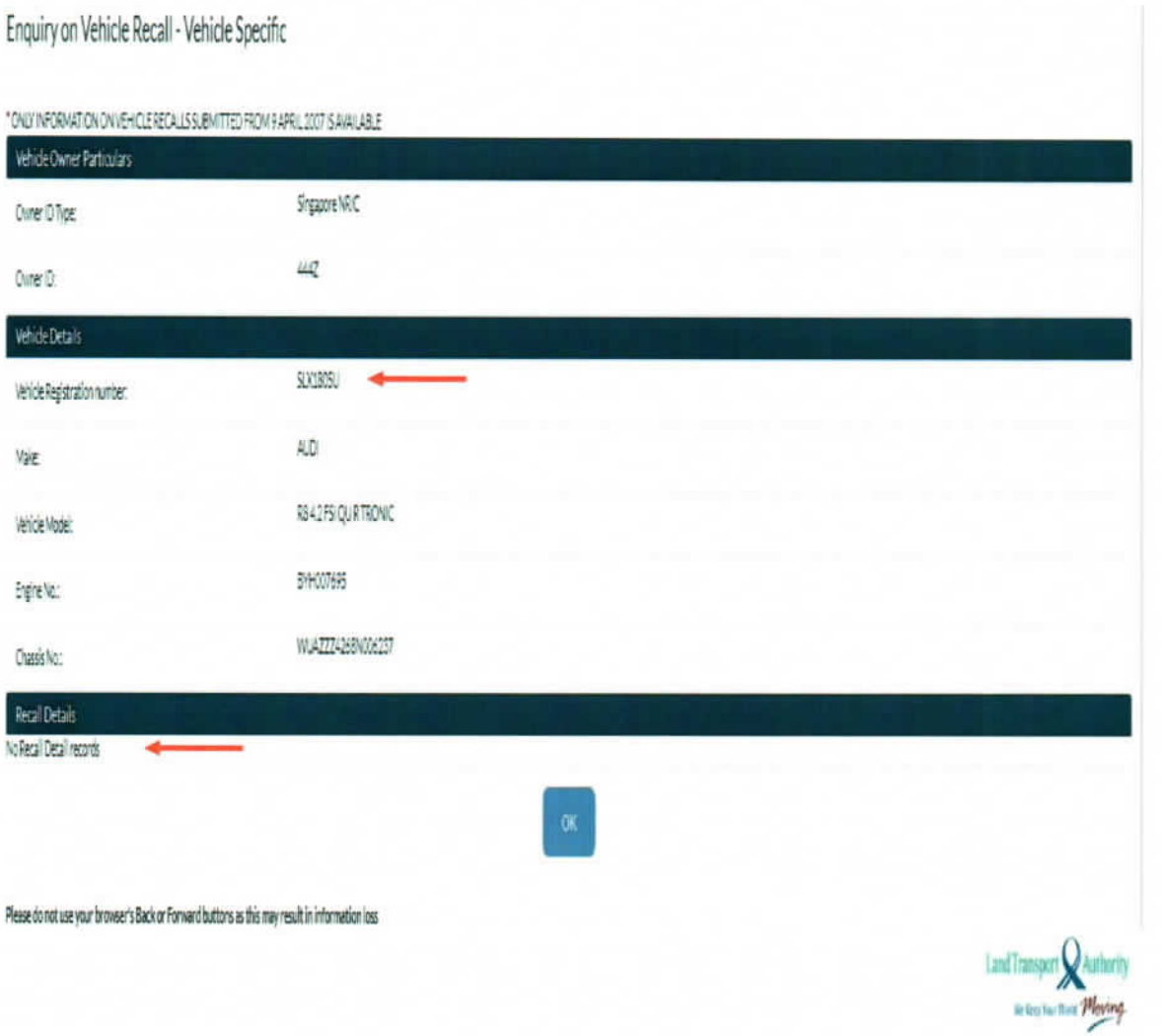
Photo 22 shows the engine compartment of the Insured Vehicle at the incident location after the fire was extinguished by SCDF personnel. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Brendan, location when the fire broke out.

24. 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 Brendan had mentioned to us there were no indications of abnormally high temperatures when he was driving the Insured Vehicle on the day of the incident. Moreover, Fire due to an overheated engine was unlikely as the Insured Vehicle was still able to be operated after flames were seen emitting from the rear of the Insured Vehicle. Mr Brendan was still able to drive the Insured Vehicle and steer it to a safe side.

25. Fire due to an electrical short circuit to the Insured Vehicle was unlikely as no greenish residue were observed on the burnt wirings, except for a few stretch of wiring harness that was slightly melted due to the heat from the burning area of the engine compartment portion of the Insured Vehicle. Furthermore, several lighting system were still functioning during and after the fire. Also, at the time of our inspection, we were able to record the mileage upon opening the doors. This would indicate that there was still electrical current in the electrical system of the Insured Vehicle.

26. Since engine overheating and electrical in nature were both unlikely the cause of fire, the most probable cause would then be the leakage of fluid, which was also what we had observed between the broken fuel hose and the running hot surface of the engine components that may cause a fire to be ignited on Insured Vehicle. The leaked fluid comes into contact with hot surfaces; such the heated engine components would possibly have been at a sufficient temperature that could result in leaked fluid to self-ignite and started burning of materials in the engine compartments of the Insured Vehicle which had caused the fire at the engine of the Insured Vehicle.

27. Our checks with both local and international bodies and associations had 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 that may possibly be related to fire being originated from the engine compartment of the Insured Vehicle. 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:	442

Vehicle Details

Vehicle Registration number:	SLX1805U
Make:	AUDI
Vehicle Model:	R8 4.2 FSI QUATTRONIC
Engine No.:	BYH007695
Chassis No.:	WUAZZZ42X8N006237

Recall Details

No Recall Detail records

OK

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Conclusion

28. 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 leakage of fluid which contacted on to hot surface that caused the self-ignition of fire. For this particular case, the fire had originated from the engine compartment area between the broken fuel hose and the engine components, somewhere around the engine's middle portion of the Insured Vehicle.

29. 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.

30. There was an aftermarket audio head unit and an electronic throttle pedal controller component fitted on the Insured Vehicle at the time of our inspection of the Insured Vehicle.

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

Sherwin Beh
Technical Investigator

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