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: G0071989 12th January 2021
Our Ref : CI/AVI21000611/P

M/s AVIVA Insurance (Singapore) Pte. Ltd.
4 Shenton Way #26-00
SGX Centre
Singapore 068807
(Motor Claims Department)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE SKB 88G ON 6th January 2021

1. We refer to your letter dated 8th January 2021 and the instructions therein.

2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SKB 88G (herein referred to as **"Insured Vehicle"**) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 11th January 2021 at the premises of Auto Spritze Pte Ltd (herein referred to as **"Auto Spritze"**) located at 1 Kim Chuan Terrace, Singapore 537024.

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

Vehicle Registration No.	: SKB 88G
Make / Model	: AUDI R8 4.2 FSI QU R-TRONIC
Chassis No	: WUAZZZ4228N006283
Year of Registration	: JULY 2008
Mileage	: NIL

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 – 8 below.

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

Photo 4 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 5 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.

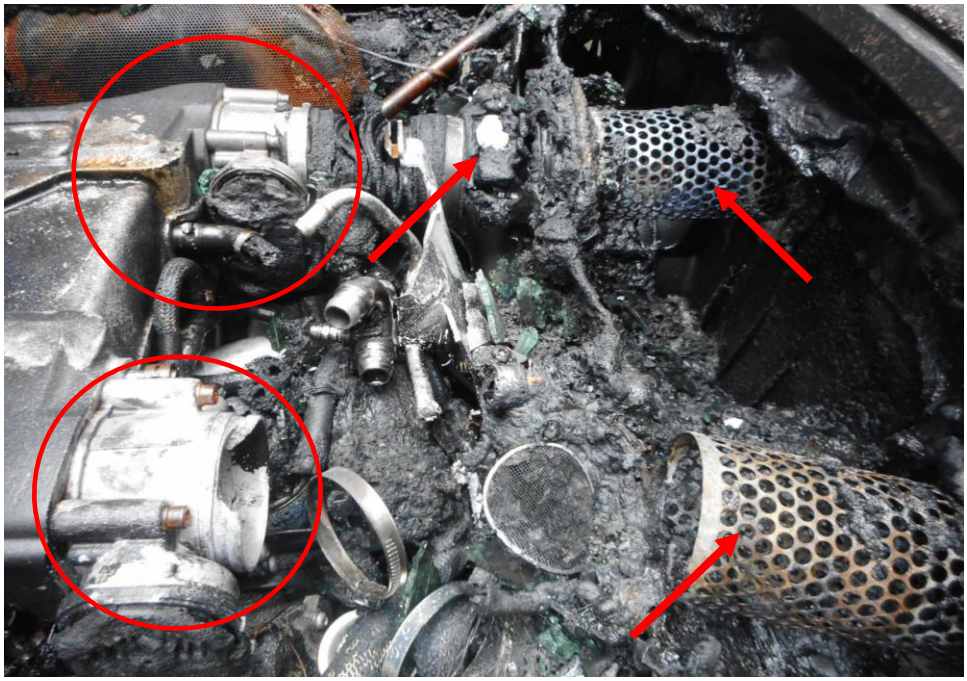


Photo 6 shows the engine compartment of the Insured Vehicle at the time of our inspection. The throttle body (circled) and various air hoses (arrowed) was observed to be burnt and/or melted as a result of the fire.

Photo 7 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 8 shows the close up interior view from the left 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 did not find any modification or aftermarket components in the Insured Vehicle

Investigation and Technical Analysis

8. From the Singapore Accident Statement, which was made by Mr Gan Ming Hao (herein referred to as **"Mr Gan"**); we note that the fire to the Insured Vehicle had started at a time while he was driving. Mr Gan 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 Gan on 11th January 2021 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 Gan, at about 2140hrs on 6th January 2021, he was driving from his house at 9 Oak Avenue to Nanyang Technological University to pick up his friend when the fire happened.

11. Prior to the fire, Mr Gan was travelling along PIE towards Tuas half to his destination. 20 minutes into his drive, he looked through the rear view mirror to check for traffic, however he saw flames engulfing he engine compartment which was located behind the driver's cabin. Subsequently, he pulled the Insured Vehicle to the road shoulder, shut of the engine ignition, exited the Insured Vehicle and proceeded to retrieve the fire extinguisher in his vehicle to extinguish the fire.

12. Mr Gan mentioned that, 1 Motor Car driver and a Motorcyclist stop to assist him and the Motor Car driver passed him a fire extinguisher to put the out flames at the engine compartment, but the flames was too strong to put out and he requested SCDF assistance.

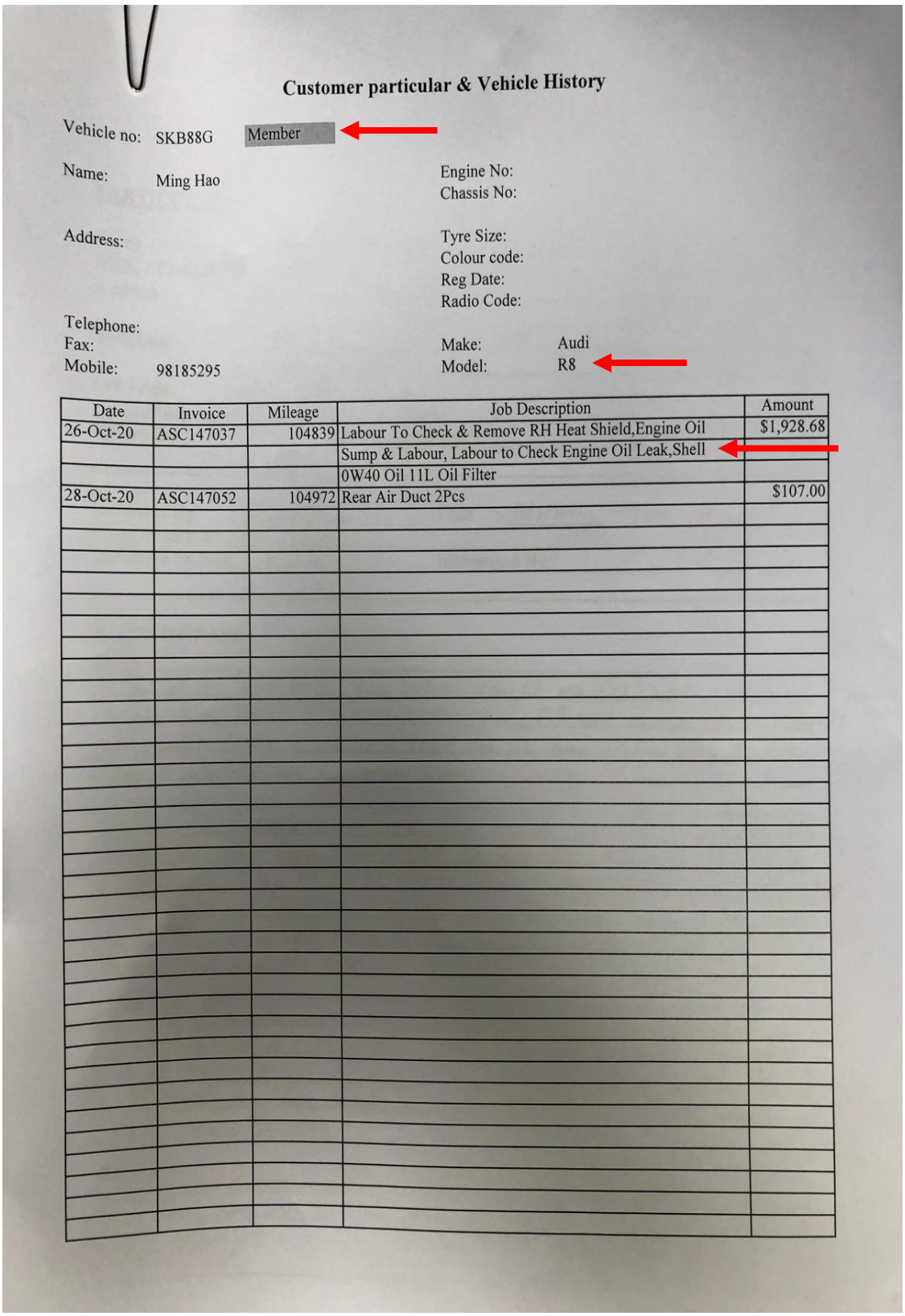
13. SCDF arrived shortly after and the fire was extinguished within 10 minutes upon arrival. Mr Gan had his statement taken by SCDF officers.

14. Mr Gan subsequently contacted his Insurance company (AVIVA) and made towing arrangements. The EMAS tow truck arrived and had the Insured Vehicle tow to the nearest safe car park and the Insurance tow truck took over from there and had the Insured Vehicle was towed to Auto Spritze Workshop and made an insurance report on the next day at 1343 hours.

15. Mr Gan 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 Gan that the Insured Vehicle was purchased pre-owned. His mum is the registered owner of the Insured Vehicle. Mr Gan informed us that he is the sole driver of the Insured vehicle since the day the Insured Vehicle was bought 3 years ago.

17. Pertaining to the maintenance aspect, Mr Gan sends the Insured Vehicle for periodical servicing. He provided us with his latest servicing record, he informed us that the engine oil sump had be replaced due to a leak and there was no major overhaul done or modifications done to the Insured Vehicle.



Customer particular & Vehicle History

Vehicle no: SKB88G Member

Name: Ming Hao

Address:

Telephone:
Fax:
Mobile: 98185295

Engine No:
Chassis No:

Tyre Size:
Colour code:
Reg Date:
Radio Code:

Make: Audi
Model: R8

Date	Invoice	Mileage	Job Description	Amount
26-Oct-20	ASC147037	104839	Labour To Check & Remove RH Heat Shield,Engine Oil	$1,928.68
			Sump & Labour, Labour to Check Engine Oil Leak,Shell	
			0W40 Oil 11L Oil Filter	
28-Oct-20	ASC147052	104972	Rear Air Duct 2Pcs	$107.00

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 9 & 10 below.

Photo 10 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 11 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 observed that the burn damage was more severe to the rear left side of the engine compartment, we had found high heat intensity burn marks (whitish burn marks), rust development and the fire had burn a hole through the rear left body panel of the Insured Vehicle. Components along this area are part of the fuel systems.

21. The left throttle body, high pressure fuel pump and broken fuel hoses were found around the area. This items were originally fitted from manufacturer all there is fuel running through this components as it is all part of the fuel system.

22. During the inspection we noticed strong fuel smell emitting from the Insured Vehicle would suggest that there was fuel leakage and noticed broken fuel hoses and the spilled fuel from the fuel hoses had come 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. 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 12 - 15 below.

Photo 12 shows the general view of the rear left engine compartment portion of the Insured Vehicle where the fire had likely started. The engine cover and the surrounding area had whitish burn marks due to high heat intensity burn on the Insured vehicle (circled)

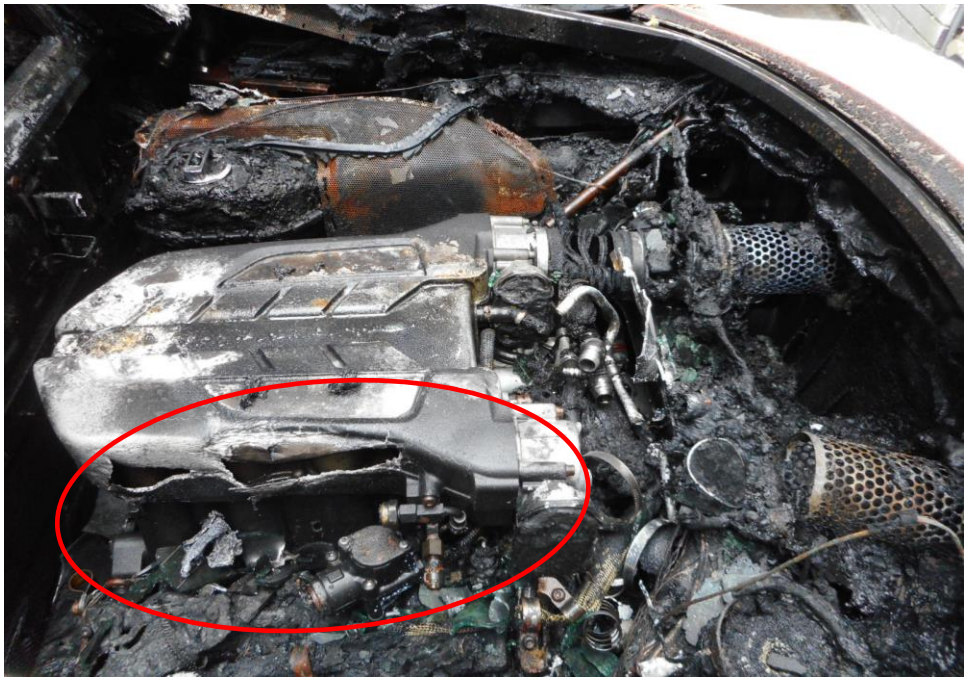


Photo 13 shows the close up view of the rear left engine compartment portion of the Insured Vehicle where the fire had likely started. The engine cover and the surrounding area had whitish burn marks due to high heat intensity burn on the Insured vehicle (circled)

Photo 14 shows the close up view of the left rear engine compartment area where the fire had likely started and spread around the engine compartment. Observed was a broken fuel hose (red arrow) from the high pressure fuel pump which had likely caused a fuel leakage onto and around the hot surface of the running engine components which was likely the cause of fire. The fire's high heat intensity burn from this area had also resulted in whitish burn marks and cracks to the engine cover) (red circle) of the Insured Vehicle.

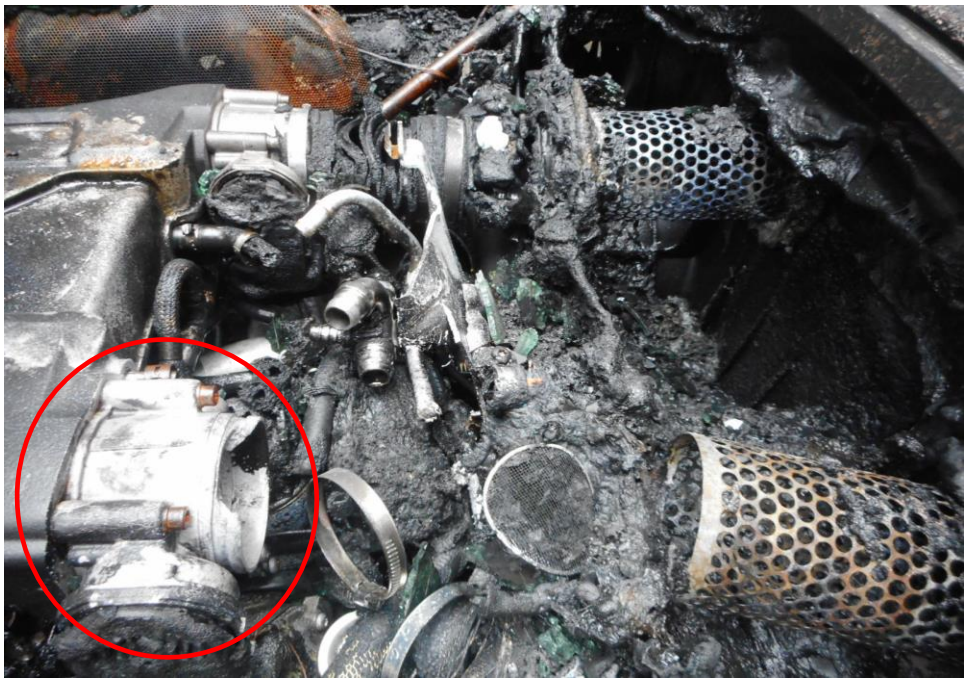


Photo 15 shows the close up view of the engine compartment portion of the Insured Vehicle where the fire had likely started. The throttle body and the surrounding areas was observed to have sustained whitish burn marks due to high heat intensity burn (circled) this was caused by the fuel leakage from the fuse hoses that come into contact with the hot running engine surfaces that had ignited the fire and was spread around the surrounding areas.

Incident Scene Photographs

23. During the course of our investigations, we were able to obtain coloured photographs showing the Insured Vehicle and the scene photos of the fire incident at the incident location. These were provided to us by Mr Gan.

24. Our examination of these photographs revealed that the fire had started from the 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, there was no further notable information that could be gathered from these photographs. See photos 16 below which were provided to us by Mr Gan.

Photo 16 From the photograph, it shows the smoke and flames engulfing the middle engine compartment of the Insured Vehicle (yellow arrow) and the lighting system of the Insured Vehicle was still functioning during the fire (red arrow).

25. 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 Gan 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 Gan was still able to drive the Insured Vehicle and steer it to a safe side.

26. 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 the fire.

27. 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.

28. 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. The owner of the Insured Vehicle had informed us that he had changed the registration number of the Insured Vehicle to SMX 4280B from SKB 88G. See search result from LTA below.

Vehicle Recall Details

* ONLY INFORMATION ON VEHICLE RECALLS SUBMITTED FROM 9 APRIL 2007 IS AVAILABLE

Owner ID Type	*Owner ID*
Singapore NRIC	**229F**
Vehicle No.	*Make/Model*
SMX4280B ←	**AUDI/ R8 4.2 FSI QU R TRONIC** ←

Engine No.:
BYH007760

Chassis No.:
WUAZZZ4228N006283

Recall Details:
No Recall Detail records ←

Conclusion

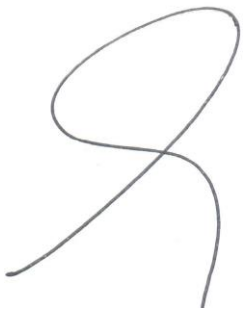
29. Having investigated and technically analysed the damages of burnt nature to the Insured Vehicle, we are of the view that the cause of fire to the Insured Vehicle was of leakage of fluid which contacted on to hot surface that caused the self-ignition of fire. For this particular case, the fire had originated from the engine compartment area between the broken fuel hoses and the engine components, somewhere around the engine's rear left portion of the Insured Vehicle.

30. 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.

31. There was 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.

32. 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



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