

Your Ref : 1202100000710
Our Ref : CS4/FWD21001723/N

3 March 2021

M/s FWD Singapore Pte. Ltd.

6 Temasek Boulevard
#18-01
Suntec Tower 4
Singapore 038986

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE SJJ 8886L ON 3 FEBRUARY 2021**

1. We refer to your letter dated 5 February 2021 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SJJ 8886L (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected at the premises of Ah Lim Motor Company (herein referred to as "**Ah Lim**") located at 176 Sin Ming Drive, Sin Ming Autocare, #05-12, Singapore 575721.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: SJJ 8886L
Make / Model	: BMW / 116I AT ABS D/AIRBAG 2WD HID 5DR
Chassis No	: WBA1A12020P575970
Year of Registration	: March 2014
Mileage	: N.A. (battery melted)

5. The Insured Vehicle was observed to have sustained severe fire damage all around. Its engine compartment and interior compartment were completely burnt. Rust had accumulated all over the rear and centre portion of the Insured Vehicle as a result of exposure to environmental condition for a period of time. See photos 1 – 6 below.



Photo 1 shows the general view of the front left portion of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage all around. Its engine compartment and interior compartment were completely burnt. Rust had accumulated all over the rear and centre portion of the Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 2 shows the general view of the left body of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage all around. Rust had accumulated all around the Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 3 shows the general view of the right body of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage all around. Rust had accumulated all around the Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 4 shows the general view of the rear portion of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage all around. Rust had accumulated all around the Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 5 shows the general view of the interior compartment of the Insured Vehicle at the time of our inspection. Its interior compartment was completely burnt as a result of the fire.



Photo 6 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.

6. At the time of physical inspection of the Insured Vehicle, we had found several aftermarket 18- inch alloy rims (which had sustained minor fire damage). All these fitted components were not the standard type for the Insured Vehicle. See photo 7 below.



Photo 7 shows the non-standard rim (which had sustained minor fire damage) found to be fitted on the Insured Vehicle at the time of our inspection. The 18-inch alloy rims fitted on the Insured Vehicle were not the standard type for the Insured Vehicle.

Investigation and Technical Analysis

7. For this particular case, the fire appears to have originated within the engine compartment of the Insured Vehicle, somewhere around the rear left portion of the engine compartment. This can be determined from the greenish residue that was found on several stretches of burnt original factory fitted wirings mainly around the rear left portion of the engine compartment. 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 appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature. See photos 8 – 11 below.

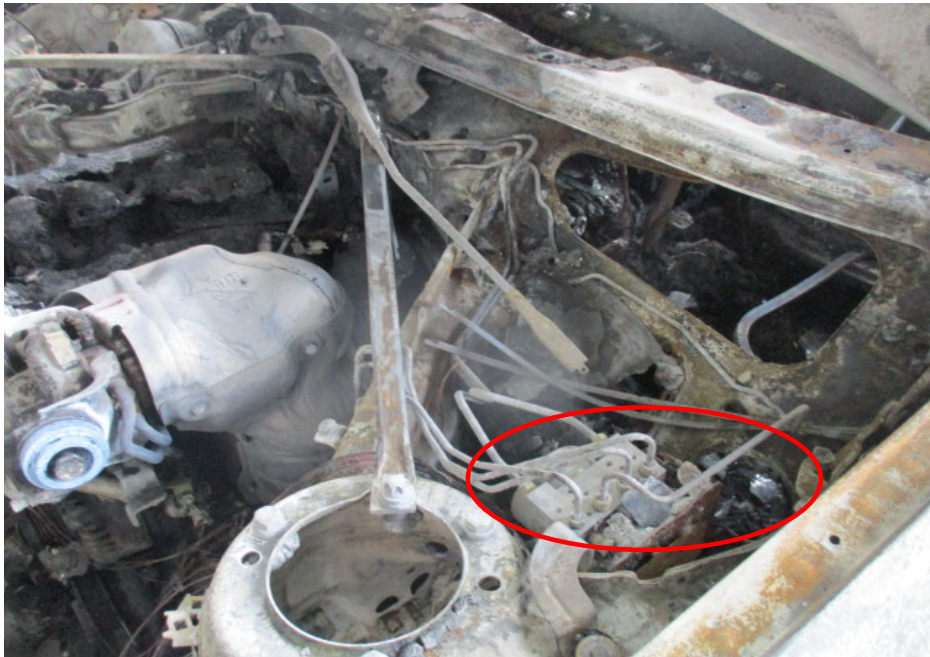


Photo 8 shows the burnt wirings around the rear left portion of the engine compartment which is near to the vicinity where the fire to the Insured Vehicle had likely started (circled).

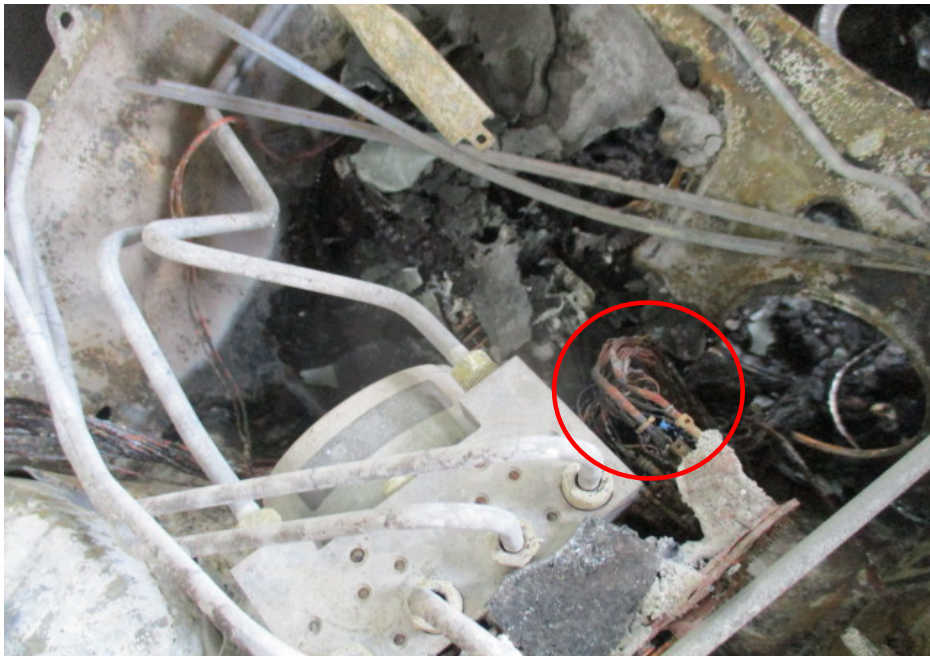


Photo 9 shows a closer view the greenish residue on several stretches of burnt wirings at the rear left portion of the engine compartment (circled), a sign of an electrical short circuit occurring. The greenish residue is normally left behind from oxidation as a result of chemical reaction involving the copper wires.



Photo 10 shows a close up view of the greenish residue on the wirings at the rear left portion of the engine compartment (arrowed). The presence of such greenish residue suggests occurrence of an electrical short circuit.



Photo 11 shows a close up view of the greenish residue on the wirings at the rear left portion of the engine compartment (arrowed). The presence of such greenish residue suggests occurrence of an electrical short circuit.

8. From the Singapore Accident Statement which was made by Mr Tuan Sufiyan bin Tuan Baharudin (herein referred to as “**Mr Sufiyan**”), we note that the fire to the Insured Vehicle had started at a time while he was driving. He was alerted of the fire when he saw smoke emitting from the engine compartment.
9. We managed to speak to Mr Sufiyan 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 Sufiyan, at about 1400hrs on 3 February 2021, he was driving to his office at Woodlands after dropping his wife off at Vivocity. He travelled along Alexandra Road towards PIE Jurong. As he passed the Bukit Panjang exit on the 1st lane, he was switching to the 2nd lane when he heard a small explosion followed by white smoke emitting from the engine compartment. He then saw smoke emitting from the rear portion of the Insured Vehicle. He moved to the road shoulder. As the Insured Vehicle came to a stop, he felt the engine bay vibrating. He immediately switched off the engine, alighted and proceeded to the back of the Insured Vehicle. He looked underneath and saw engine oil on the road from the undercarriage of the Insured Vehicle. A fire then broke out from the left bottom portion of the Insured vehicle’s engine compartment.
11. He quickly called 995. SCDF arrived in less than 20 minutes followed by the police. The fire was extinguished in 15 minutes. Mr Sufiyan assisted the SCDF in their preliminary investigations and his statement was also taken by the police. The tow truck arrived an hour later and the Insured Vehicle was towed to Ah Lim. Mr Sufiyan made the insurance report the following day on 4 February 2021 at Ah Lim at 1545 hours.
12. With regards to the history of the Insured Vehicle, we were able to gather from Mr Sufiyan that the Insured Vehicle was purchased second-hand from a broker in October 2020. Mr Sufiyan is the owner and only driver of the Insured Vehicle. To the best of his recollection, Mr Sufiyan mentioned that when he first viewed the Insured Vehicle, he noticed oil stains around the engine compartment of the Insured Vehicle. The broker then had the diverter valve replaced at Toren Teknik (herein referred to as “**TT**”) located at 25 Kaki Bukit Road 4, Synergy@KB, #06-53, Singapore 417800. Refer to Invoice 1 below.

Toren Technik
Synergy@KB Blk 21 Kaki Bukit Road 4
#01-02
Singapore 417810

Email: jonathanchan70@gmail.com
UEN: 53383502W
Phone No: +65 9725 3111
Website: www.facebook.com/torenttechnik

INVOICE//INV2199

CUSTOMER
Edric SJJ8886L
WBA1A12020P575970

Invoice No: INV2199
Date: 14/09/2020
Term: Bank Transfer

#	ITEM	QTY	RATE (S\$)	TOTAL (S\$)
1	Diverter valve Original BMW	1	300.00 Discount	300.00 -50.00
SUB TOTAL				S\$ 300.00
DISCOUNT				-S\$ 50.00
GRAND TOTAL				S\$ 250.00
PAYMENT (BANK TRANSFER)				-S\$ 250.00
BALANCE				S\$ 0.00

tes
 mileage: 128,543KM

Invoice 1 shows the diverter valve replaced (circled) at TT on 14 September 2020 (red arrows) before Mr Sufiyan collected the Insured Vehicle.

- Mr Sufiyan went on to mention that 1 week after he collected the Insured Vehicle, the engine oil warning light had come on. He went back to TT and had the engine oil topped up. Shortly after that the breather hose had cracked. Mr Sufiyan informed the broker who bought a replacement hose and changed it for him at Mr Sufiyan's carpark. See photo 12 below.



Photo 12 shows the broken breather hose of the Insured Vehicle (circled) which was later replaced by the broker as mentioned by Mr Sufiyan.

14. Mr Sufiyan also informed us that 1 month after he drove the Insured Vehicle, the engine oil warning light had come on again. He had the engine oil topped up at a Shell petrol station near Vivocity. He had kept the receipt in the Insured Vehicle which was unfortunately destroyed in the fire.
15. We asked Mr Sufiyan regarding the aftermarket 18- inch alloy rims. He mentioned that he had replaced the rims with aftermarket 18- inch alloy rims after he bought the Insured Vehicle. Mr Sufiyan mentioned that apart from this, he has not done any other modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.
16. Pertaining to the maintenance aspect, the Insured Vehicle was not due for periodic servicing. However Mr Sufiyan did have the timing cap and crank pulley oil seal replaced in November 2020. See photo 13 below.

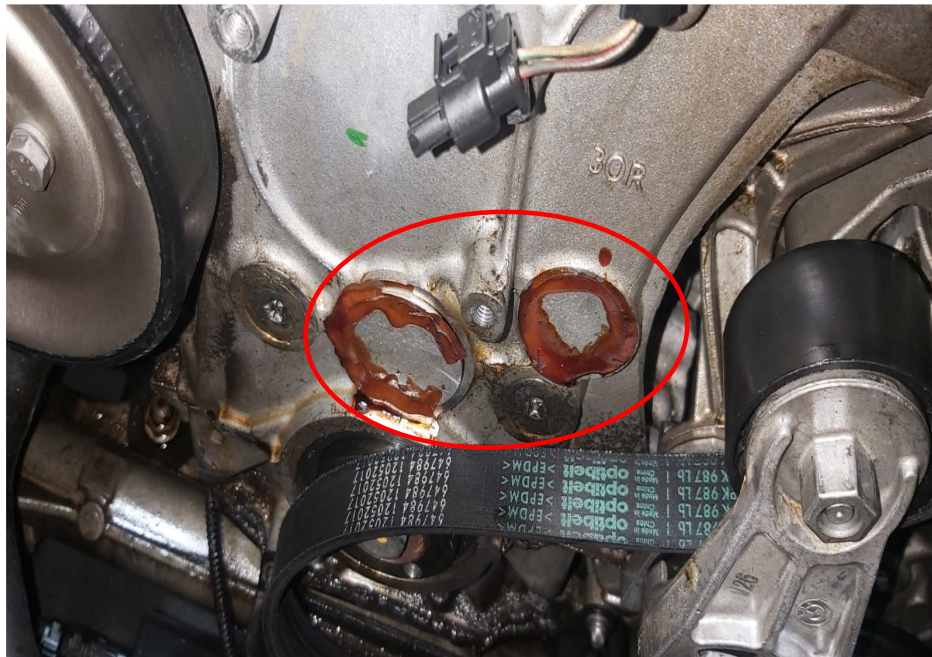


Photo 13 shows the timing cap and crank pulley oil seal (circled) which were replaced in November 2020 at Alltech Auto Service Pte. Ltd. as mentioned by Mr Sufiyan.

17. During the course of our investigations, we were also able to obtain from Mr Sufiyan, photographs and documents relating to the wear and tear issues as well as repair works done to the Insured Vehicle. The timing cap and crank pulley oil seal were replaced in November 2020 at Alltech Auto Service Pte. Ltd. located at 1, Bukit Batok Crescent, WCEGA PLAZA, #05-48, Singapore 658064. Refer to Invoice 2 below.

[illegible]

Invoice 2 shows the last repairs done on the Insured Vehicle at Alltech Auto Service Pte. Ltd. in November 2020 (red arrows). The timing cap and crank pulley oil seal were replaced (circled).

18. Mr Sufiyan mentioned that after the repairs were done, he had not experienced any mechanical or electrical problems with the Insured Vehicle till the day of the incident. 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

19. We were able to obtain from Mr Sufiyan, photographs of the Insured Vehicle on fire as well as photographs which he had taken after the fire was put out. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Sufiyan. 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 where the Insured Vehicle was positioned. See photos 14 & 15 below.




Photo 14 shows the Insured Vehicle on fire before the arrival of the SCDF. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Sufiyan, which is the fire had started from the left bottom portion of the Insured Vehicle's engine compartment (arrowed).



Photo 15 shows the SCDF putting out the last remnants of 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 Sufiyan, which is the police were present at the incident location together with the SCDF (arrowed).

20. Based on the vehicle service record invoices provided, we are of the opinion that it is unlikely that the fire could have been caused by poor maintenance of the Insured Vehicle.
21. 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 Mr Sufiyan had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle. Moreover, an overheated engine would have caused the Insured Vehicle to stall. However in this case, Mr Sufiyan was the one who noticed smoke emitting from the engine compartment 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.
22. 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 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.

23. 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 7 above.
24. 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 exterior of the Insured Vehicle. See search result from LTA below.



Vehicle Recall Details

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

Owner ID Type Singapore NRIC	Owner ID 200B ←
Vehicle No. SJJ8886L ←	Make/Model B.M.W./ 116I AT ABS D/AIRBAG 2WD HID 5DR
Engine No.: A609J673N13B16A	Chassis No.: WBA1A12020P575970
Recall Details: No Recall Detail records ←	

Conclusion

25. 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 left portion. The wirings were original factory wirings of the Insured Vehicle.

26. 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.
27. We found the Insured Vehicle to be fitted with 18- inch alloy rims. The tyre rims fitted do not require prior approval from LTA.
28. Although the aftermarket alloy rims fitted on the Insured Vehicle were not the standard type for the Insured Vehicle, we are of the view that these parts did not cause and/or contribute to the fire incident.

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

DISCLAIMER OF LIABILITY TO THIRD PARTIES:- This Report is made solely for the use and benefit of the Client named on the front page of this Report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part, does so at his or her own risk.