

Your Ref: S1M031BE
Our Ref : CS4/ASM21009921/D

20 October 2021

M/s AXA Insurance Pte Ltd

8 Shenton Way #24-01
AXA Tower
Singapore 068811
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE YL 8552L ON 17 SEPTEMBER 2021**

1. I refer to your request dated 23 September 2021.
2. My analysis, comments and opinions with respect to the cause of fire to the insured vehicle YL 8552L (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 27 September 2021 at the premises of M/s Connect 3, 566 Woodlands Road, Singapore 728697.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded: -

Vehicle Registration No.	: YL 8552L
Make / Model	: Nissan Cabstar
Chassis No	: JN1SF4F23Z0853148
Year of Registration	: 2004 (November)
Mileage	: 452,979km

5. The Insured Vehicle was observed to have sustained fire damage at its rear deck. This was at the right side front of the rear deck, directly behind the right side of the Insured Vehicle's front cabin.
6. The aluminium plates surrounding the right side front of the rear deck, the vertical wooden side gate extension at the right side front of the Insured Vehicle and the rear exterior of the front cabin at the right side amongst others, were found with fire damage.
7. The fire had also affected the driver's seat and roof upholstery amongst others in the interior compartment of the front cabin. The front cabin glass window was also shattered. See photo 1 – 8 below.



Photo 1 shows a general view of the rear right body of the Insured Vehicle at the time of inspection. The Insured Vehicle was observed to have sustained fire damage at its rear deck. This was at the right side front of the rear deck, directly behind the right side of the Insured Vehicle's front cabin.



Photo 2 shows a general view of the right side front of the Insured Vehicle's rear deck. The Insured Vehicle was observed to have sustained fire damage at its rear deck. This was at the right side front of the rear deck, directly behind the right side of the Insured Vehicle's front cabin. The aluminium plates surrounding the right side front of the rear deck, the vertical wooden side gate extension at the right side front of the Insured Vehicle and the rear exterior of the front cabin at the right side amongst others, were found with fire damage.



Photo 3 shows a closer view of the partially burnt aluminium plates surrounding the right side front of the Insured Vehicle's rear deck.



Photo 4 shows another view of the partially burnt aluminium plates surrounding the right side front of the Insured Vehicle's rear deck. The rear exterior of the front cabin at the right side was also observed to be partially burnt. The front cabin glass window was shattered as a result of the fire.



Photo 5 shows a closer view of the partially burnt vertical wooden side gate extension at the right side front of the Insured Vehicle.



Photo 6 shows a closer view of the partially burnt driver's seat in the interior compartment of the Insured Vehicle's front cabin. The driver's seat and roof upholstery amongst others in the interior compartment of the front cabin was affected by the fire.



Photo 7 shows a closer view of the partially burnt roof upholstery in the interior compartment of the Insured Vehicle's front cabin. The driver's seat and roof upholstery amongst others in the interior compartment of the front cabin was affected by the fire.



Photo 8 shows a general view of the front right body of the Insured Vehicle. No fire damage was observed to other areas of the Insured Vehicle except for the right side front of the rear deck, directly behind the right side of the Insured Vehicle's front cabin. The interior compartment of the Insured Vehicle's front cabin was also affected.

8. The Insured Vehicle was not fitted with any additional electronic and/or electrical component(s). There was also no modification(s) fitted on the Insured Vehicle.

Circumstance of Incident

9. From the Singapore Accident Statement, which was made by one Leong Ying Liat (herein referred to as "**Mr Leong**"), I note that the fire to the Insured Vehicle had started at a time when he was driving the Insured Vehicle. On 17 September 2021 at about 0942hrs, Mr Leong was driving the Insured Vehicle towards Telok Blangah when he smelled smoke coming from the outside of the Insured Vehicle. Upon looking out from the sideview mirror, he saw the goods (air conditioning equipment(s)) at the back of the Insured Vehicle engulfed in smoke. He quickly stopped the Insured Vehicle and called his boss. One of the air conditioning compressors started to burn causing damage to the Insured Vehicle.
10. A detailed interview with Mr Leong was conducted on 08 October 2021. Further information with regard to the incident was gathered and are now summarized in the below paragraphs.
11. On the morning of 17 September 2021, Mr Leong went to his workplace at Block 2024 Bukit Batok Street 23 #01-60 to collect the Insured Vehicle for delivery duties for that day. Mr Leong works as a delivery driver for M/s Heng Choon Logistics Pte Ltd who is one of the local third party delivery vendors for new Daikin air conditioning equipment(s).
12. After collecting the Insured Vehicle, Mr Leong drove the Insured Vehicle to No. 38 Tuas West Road to collect several new air conditioning compressors and new air conditioning units for delivery to various locations in Singapore. Mr Leong informed that he did not experience any abnormality to the operating behaviour of the Insured Vehicle.
13. Mr Leong proceeded to his first delivery location for the day at a private residence located in Sentosa Island. He estimates that this delivery at Sentosa Island took about 10 minutes, from the time he arrived at the location to completion of the delivery. He was driving the Insured Vehicle heading to his second delivery location at Depot Road when the fire occurred.

14. Whilst driving along Telok Blangah Road heading towards Depot Road, Mr Leong heard gas leaking sounds and saw white smoke coming from the rear deck of the Insured Vehicle, at the area nearer to the Insured Vehicle's front cabin. He immediately stopped the Insured Vehicle along the side of the road and called his boss. Shortly after, he saw flames coming out from one of the new air conditioning compressor units that he was supposed to deliver. While waiting for SCDF to arrive, Mr Leong pulled some of the new air conditioning compressors and new air conditioning units out of the Insured Vehicle. SCDF officers extinguished the fire upon their arrival.
15. I was also able to gather that the Insured Vehicle was subsequently tow back to No. 38 Tuas West Road for the purpose of unloading the remaining undamaged new air conditioning equipment(s) before the Insured Vehicle was eventually driven to workshop for repairs by Mr Leong's boss.

Incident Scene Photographs & Videos

16. Mr Leong's Singapore Accident Statement had contained 3 photographs that were taken at the incident scene. In addition, he provided me with 2 video recordings that he had taken whilst at the incident scene. One video recording was 9secs in duration while the other video recording was 6secs in duration.
17. From both the video recordings, I note that the Insured Vehicle was stopped on the left lane with white smoke coming out from one of the new air conditioning compressors at the right side front of the Insured Vehicle's rear deck. Hissing sounds were also heard in one of the video recordings. The brand of the new air conditioning equipment(s) loaded on the rear deck of the Insured Vehicle was observed to be Daikin.
18. The photographs in Mr Leong's Singapore Accident Statement showed fire engulfing the same new air conditioning compressor that had emitted the white smoke seen in the video recordings. One of the photographs also showed SCDF officers at scene examining the burnt new air conditioning compressor after the fire was extinguished. See photo 9 – 12 below.



Photo 9 shows a screenshot extracted from one of the video recordings that were provided to me by Mr Leong. The Insured Vehicle can be seen stopped on the left lane with white smoke coming out from one of the new air conditioning compressors at the right side front of the Insured Vehicle's rear deck. Hissing sound was also heard in one of the video recordings.



Photo 10 shows a screenshot extracted from one of the video recordings that were provided to me by Mr Leong. White smoke can be seen coming out from one of the new air conditioning compressors (arrowed) at the right side front of the Insured Vehicle's rear deck. Hissing sound was also heard in one of the video recordings.



Photo 11 shows the Insured Vehicle at the incident scene (photograph extracted from Mr Leong's Singapore Accident Statement). Fire can be seen engulfing the same new air conditioning compressor (arrowed) that had emitted the white smoke that was seen in the video recordings (refer to photograph 10 above). The brand of the new air conditioning equipment(s) loaded on the rear deck of the Insured Vehicle was observed to be Daikin.



Photo 12 shows the Insured Vehicle at the incident scene (photograph extracted from Mr Leong's Singapore Accident Statement). Fire can be seen engulfing the same new air conditioning compressor that had emitted the white smoke that was seen in the video recordings (refer to photograph 10 above). This new air conditioning compressor was noted to be at the right side front of the Insured Vehicle's rear deck.

Cause of Fire

19. For this case, it can be established from the video recordings and incident scene photographs that the fire to the Insured Vehicle had originated outside of the Insured Vehicle, from one of the new air conditioning compressors at the right side front of the Insured Vehicle's rear deck. Correspondingly, the fire damage to the Insured Vehicle seen at the time of inspection was also confined to the various parts of the Insured Vehicle surrounding this same area. Refer to photograph 2 to 7 above.
20. The Insured Vehicle was carrying several new air conditioning equipment(s) that include new compressor units (outdoor) and new evaporator units (indoor) amongst others on its rear deck at the material time of incident. The hissing sounds heard in the video recording before the fire was seen is a sign of pressurized refrigerant leakage from the burnt new air conditioning compressor. The white smoke seen in photograph 9 above is leaked refrigerant gases instead of white smoke associated with heat, given that the dissipation was sideways and not upwards. For completeness, one of the characteristics of heat is that it rises upwards hence smoke associated with heat will have an upward dissipation as shown in photograph 10 to 12 above.
21. The refrigerant gases could have leaked due to failure of a valve(s) of the burnt new air conditioning compressor. The leaked pressurized refrigerant gases then self-ignited upon mixture with air (oxygen), which lowered the flash point temperature of the refrigerant gases. Our high local humidity weather condition had also likely accelerated the self-ignition process leading to the occurrence of the fire for this case.

Others

22. My checks with both local and international bodies and associations had revealed that at the time of writing this report, there is no manufacturer recall campaign which involved the Insured Vehicle. See search result from LTA below.

Enquire if Your Vehicle is Under Recall

Vehicle Recall Details

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

Owner ID Type Company
Owner ID 988W
Vehicle No. YL8552L ←
Make/Model NISSAN/ CABSTAR
Engine No.: QD32199273
Chassis No.: JN1SF4F23Z0853148
Recall Details: No Recall Detail records ←

Screenshot shows the LTA search result regarding manufacturer recall. From the result, the Insured Vehicle was not involved in any recall campaign.

Conclusion

23. Having investigated and technically analysed the damages of burnt nature to the Insured Vehicle, I am of the view that the cause of fire to the Insured Vehicle was due to external causation where leaked pressurized refrigerant gases had self-ignited. For this particular case, the leaked pressurized refrigerant gases were likely due to a valve(s) failure of the burnt new air conditioning compressor that the Insured Vehicle was carrying on its rear deck.

24. There was no modification(s) or additional electronic and/or electrical component(s) fitted on the Insured Vehicle at the time of inspection.

25. My investigations also revealed that the Insured Vehicle is not involved in any manufacturer recall campaign.

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