



Your Ref: Z18VC05000872
Our Ref : CS/LPC18021332/Z

03rd December 2018

M/s Lonpac Insurance Bhd
300 Beach Road #17-04/07
The Concourse
Singapore 199555
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE YN 9976E ON 24th November 2018**

1. We refer to your letter dated 26th November 2018 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle YN 9976E (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 27th November 2018 at the premises of Kan Fook Sing Motor Workshop. (herein referred to as "**KFS**") located at 61, Defu Lane 12, Singapore 539147.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: YN 9976E
Make / Model	: ISUZU NPR75UK5A
Chassis No	: JAANPR75KE7104490
Year of Registration	: October 2015
Mileage	: N.A (battery melted)

5. The Insured Vehicle was observed to have sustained severe fire damage all around. Its engine compartment, interior compartment and rear storage compartment were completely burnt. Rust had accumulated all over the Insured Vehicle as a result of exposure to environmental condition for a period of time. See photos 1 – 7 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 Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 2 shows the general view of the right front 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 over the Insured Vehicle as a result of exposure to environmental condition for a period of time.



Photo 3 shows the general view of the rear body of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage at the rear storage compartment. Carton boxes, plastics, steel materials were found to be burnt which were located at the rear compartment affected by the fire.



Photo 4 shows the general view of the rear body of the Insured Vehicle at the time of our inspection. The Insured Vehicle was observed to have sustained extensive fire damage at the rear storage compartment. Carton boxes, plastics, steel materials were found to be burnt which were located at the rear compartment affected by the fire.



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 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 7 shows part of 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 inspection, we did not find any unusual skeletal remains which could have suggested that there was possible modification(s) on 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. This can be determined from the burn pattern and the high heat intensity burn marks (whitish burn marks) found as well as the rust that had developed on the exterior side of the Insured Vehicle.
8. 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 exterior side of the Insured Vehicle is an indication that the engine compartment had sustained exposure to prolonged high heat intensity. See photo 8 below.

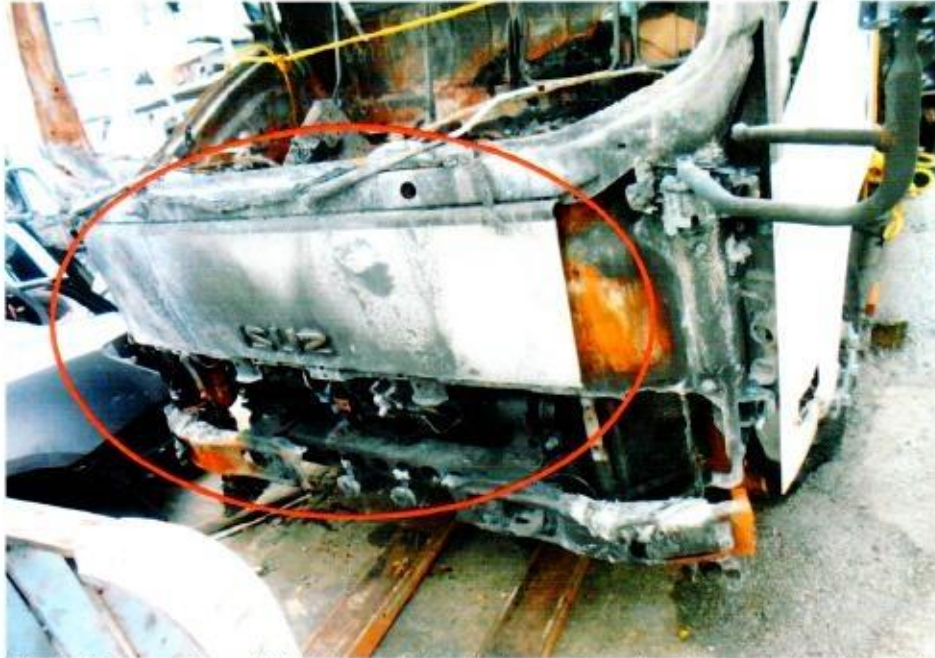


Photo 8 shows the whitish burn marks that were found on the exterior side of the Insured Vehicle (circled). Such whitish burn marks are a result of exposure to prolonged heat intensity. Rust would also begin to develop on these areas soon after the fire. The development of rust is an indication that the area was exposed to prolonged exposure to high heat intensity, which had caused the steel/metal material of the passenger side engine access panel to be exposed to natural environmental condition.

9. Upon closer examination of the engine compartment, which was where the fire to the Insured Vehicle had likely started, we had found several stretches of wiring with green residue. These wirings were original factory fitted wirings that were around the centre portion of the engine compartment. We also found greenish residue on several stretches of wirings leading from the battery of the Insured Vehicle. 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. These physical evidences would appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature. See photos 9 - 13 below.



Photo 9 shows the wirings around the centre portion of the dashboard compartment which is near to the vicinity where the fire to the Insured Vehicle had likely started. We observed greenish residue on the wirings at the centre portion of the dashboard compartment (arrowed).



Photo 10 shows a closer view of the greenish residue found on the wirings at the centre portion of the dashboard compartment (arrowed). This seems to suggest the occurrence of an electrical short circuit.



Photo 11 shows the original stretch wirings located at the centre portion of the dashboard (circled) of the Insured Vehicle. We observed greenish residue on these wirings (arrowed).



Photo 12 shows a general view of the front dashboard where the possible shot circuit wirings of the Insured Vehicle (arrowed).



Photo 13 shows a general view of the melted battery of the Insured Vehicle due to the fire incident.

10. From the Police Report No. G/20181126/2036 which were made by Mr Lee Kah Kuang (herein referred to as "**Mr Lee**"), on 24th November 2018 at about 1600hrs, he was driving the Insured Vehicle, a blue clour Isuzu, bearing registration number YN9976E, along the forth lane when he heard other motorist keep honking to him. He made a check to his rear mirror and saw many dust coming from the carton boxes from his rear compartment. He stopped to check and found that his carton boxes had caught fire. He then stopped other motorist and uses their fire extinguisher to try to extinguish the fire, but to no avail. The Insured Vehicle was soon engulfed with ragging fire. Mr Lee then notified his boss who then assisted to call the fire engine. The fire engine, police and LTA road marshal came to assists him.
11. We managed to speak to Mr Lee on 28th November 2018 in the vicinity of Mac Donald's Bedok Interchange branch where we were able to gather further information pertaining to the incident as well as the history of the Insured Vehicle. Mr Lee is working for "Gee Hoe Seng Pte Ltd" as a driver. Together with an assistant called Mr Lee Kai Loh they will go to locations to collect recycle materials which consists of carton boxes, plastics, metal cans, steels etc. Both Mr Lee & his assistant are non-smoker.

12. On the day of the fire incident, Mr Lee was heading back to his office at Blk 53 Ubi Avenue 1, Paya Ubi Industrial Park from Penjuru Road. He was travelling along AYE entering Clementi Avenue 6 wanted to take the route towards PIE. Before exiting AYE he notice of other motorist keep honking on him. He then check his rear mirror and saw that there's many smoke & dust coming from his rear compartment where he stuff his recycle materials. He immediately stopped at the road shoulder to borrow fire extinguisher from other passer by motorist but still failed to extinguish the fire. Mr Lee then informed his boss & his boss assisted to call for SCDF assistance.
13. SCDF fire engine came to the fire scene at about 25 minutes later. They managed to extinguish the fire about ½ hour. Mr Lee was interview by SPF & SCDF investigating Officers after the fire was successfully extinguished. The Insured Vehicle was arranged to be towed to Lonpac's authorised workshop which is at Kan Fook Sing Motor Workshop.
14. With regard to the history of the Insured Vehicle, we were able to gather from Mr Lee's boss called Mr Eric Teo that the Insured Vehicle was purchased new in 2015. The COE of the Insured Vehicle was noted to be expiring in October 2025. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle prior the fire incident.
15. Pertaining to the maintenance aspect, Mr Lee's boss sends the Insured Vehicle for periodic servicing. Since the Insured Vehicle was purchased brand new, it came with a free servicing for 12 times free servicing with the Truck Dealer "Triangle Auto Pte Ltd". A track record of periodic servicing was provided for our review.
16. The last servicing from the service record before the incident was done on 01st October 2018. This was however based only on the service records from Triangle Auto Pte Ltd that was provided to us. No details on parts change or replacement of any consumable parts or engine fluid change. See Invoice 1 below.



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

Service Records

YN576E

7th Servicing FREE SERVICE Date of Service <u>13/6/17</u> Mileage <u>40314</u> Km  Dealer Stamp/Signature 	10th Servicing FREE SERVICE Date of Service <u>5/3/18</u> Mileage <u>62756</u> Km  Dealer Stamp/Signature 
8th Servicing FREE SERVICE Date of Service <u>6/10/17</u> Mileage <u>45855</u> Km  Dealer Stamp/Signature 	11th Servicing FREE SERVICE Date of Service <u>18/5/18</u> Mileage <u>70339</u> Km  Dealer Stamp/Signature 
9th Servicing FREE SERVICE Date of Service <u>2/12/17</u> Mileage <u>56343</u> Km  Dealer Stamp/Signature 	12th Servicing FREE SERVICE Date of Service <u>1/10/18</u> Mileage <u>84516</u> Km  Dealer Stamp/Signature 

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Invoice 1 shows the latest servicing record done on the Insured Vehicle on 01st October 2018 at Triangle Auto Pte Ltd.



17. To the best of her recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle. Mr Lee also informed that ever since the Insured Vehicle was purchased, no modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.

Incident Scene Photographs

18. We were able to obtain photographs from Mr Lee which was taken by him at the incident location. The photographs were taken during the fire and after the fire to the Insured Vehicle were extinguished.
19. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Lee. 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 located. See photos 14 & 15 below.



Photo 14 shows the Insured Vehicle engulfed in flames before the arrival of the SCDF.



Photo 15 shows the SCDF conducting preliminary investigations after the fire to the Insured Vehicle was extinguished.

20. 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 there was no warning indication on the meter panel prior the fire incident.
21. The possibility of the fire being due to external factors (foreign material(s) stuck on hot surfaces, arson and sabotage amongst others) may be possible given that there was recycle materials (carton boxes, plastics, empty cooking oil can) placed at the rear carriage deck of the Insured Vehicle. However during the course of our investigations, we were unable to gather concrete evidence to suggest this was the actual cause of fire.
22. The possibility of the fire being due to electrical in nature is also possible. The fire being due to electrical in 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 9 above. However, given that Mr Lee had first seen fire at the rear compartment where the carton boxes are located, the cause of fire is more likely due to external factor.
23. Our checks with both local and international bodies and associations had revealed that at the time of writing this report, there is no manufacturer recall of electrical nature to similar make and model vehicle as the Insured Vehicle that may possibly be related to this incident. 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:	Company
Owner ID:	6350W
Vehicle Details	
Vehicle Registration number:	YN9976E
Make:	ISUZU
Vehicle Model:	NPR75UK5A
Engine No.:	4HK1298945
Chassis No.:	JAANPR75KE7104490
Recall Details	
No Recall Detail records	


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Conclusion

24. 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 likely due to external factors where the flames from the origin source had spread to the Insured Vehicle. However the origin of the fire could not be determined as we were unable to view the video footage of the AYE camera where the incident occurred. Our examination of the scene photographs provided to us by Mr Lee also did not reveal any unusual material(s)/object(s) found on the ground near where the Insured Vehicle had caught fire. Mr Lee & his assistant were also noted to be a non-smoker.
25. 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.
26. There were 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.
27. Our investigations had also revealed that at the time of writing this report, there is no manufacturer recall of electrical nature to similar make and model vehicle as the Insured Vehicle that may possibly be related to this incident.
28. 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.



Rohaizal A. Rahim
Technical Investigator



Ang Bryan Tani

AMSOE, AMRTE, AFF SAE, M.MATAI, AFF.Inst.AEA
Senior Technical Investigator
Technical Investigation & Reconstructionist (SAE-A)

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