

Your Ref: M2303020  
Our Ref : CS4/TMI23005766/N

5 June 2023

**M/s Tokio Marine Insurance Singapore Ltd**  
20 McCallum Street #09-01  
Tokio Marine Centre  
Singapore 069046  
(Motor Claims Department)

### **TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE TRC 8055K ON 15 MAY 2023**

1. We refer to your letter dated 1 June 2023 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle TRC 8055K (herein referred to as “**Insured Vehicle**”) are set out below.

#### **Inspection of the Insured Vehicle**

3. The Insured Vehicle was physically inspected on 1 June 2023 at the premises of Tian Hwee Long Enterprises (herein referred to as “**THL**”) located at 51 Gul Drive, Singapore 629496.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: TRC 8055K
Make / Model	: SIN TRANS ENGRG P L / 20' DUAL AXLE SKELETAL CONTAINER TRAILER
Chassis No	: STEPL266013
Year of Registration	: May 2013
Mileage	: N.A.

5. The exterior body of the Insured Vehicle had sustained fire damages more towards the centre portion as well as its centre right wheels and tyres. The affected parts had included the right centre wheel panel and the right centre wheel rims and tyres. See photos 1 – 6 below.



**Photo 1** shows the general view of the frontal portion of the Insured Vehicle at the time of our inspection. The frontal portion of the Insured Vehicle was unaffected by the fire.



**Photo 2** shows the general view of the rear portion of the Insured Vehicle at the time of our inspection. The rear portion of the Insured Vehicle was unaffected by the fire.





**Photo 3** shows the general view of the left portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle had sustained fire damage at the centre portion. Affected parts had included the centre wheel panels.



**Photo 4** shows the general view of the right portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle had sustained fire damages at the right centre wheel and rim area as well as its right centre wheel panel portion. Affected parts had included the right wheel panel and the right centre wheel and rims.



**Photo 5** shows the close up view of the right centre portion of the Insured Vehicle at the time of our inspection. The right wheel panel and right centre wheel rims and the tyres of the Insured Vehicle had sustained severe fire damage.



**Photo 6** shows a closer view of the right centre portion of the Insured Vehicle at the time of our inspection. The fire damage was observed to be at its right centre portion. The right centre wheel panel was observed to be affected by the fire.



6. At the time of inspection of the Insured Vehicle, we did not find any additionally fitted electronic and/or electrical component(s) on the Insured Vehicle. There also appears to be no modification(s) fitted on the Insured Vehicle.

### **Investigation and Technical Analysis**

7. For this particular case, the fire appears to have originated from the right centre portion of the Insured Vehicle, around the right centre wheel rims and tyres portion of the Insured Vehicle. This can be determined from the nature of the fire damage which was more extensive at the right centre portion. Basing on the circumstances of the fires' origin at the material time of incident as well as examining the area where the extent of fire damage was most severe, we can determine that the fire had likely started from the right centre wheel rims and tyres portion of the Insured Vehicle.
8. Upon closer examination of the right centre portion of the wheel rims and its tyres of the Insured Vehicle as well as around the immediate vicinity to where the fire had likely started, we had observed that the outer wheel rim had sustained the highest heat intensity burn marks (whitish burn marks) that were found on the surface of it and it was also dented and cracked.
9. In our opinion, the dent and cracked damages observed on the right centre outer wheel rim was likely not the result of the fire. In support to this claim we have investigated further; we focus on our findings to the wheel rim and tyres area and identify that the moving components in the area are the drum brakes system and the wheel drum itself.
10. Firstly, we have removed the right wheel rims of the Insured Vehicle to inspect their drum brakes and brake pads and we did not notice any signs of brakes lock up or burn to either the exterior or interior surface of the rear right brake drums and top or bottom of the brake pads on the Insured Vehicle.
11. Secondly, we have examined the outer right centre wheel rim and notice that the dent and cracked wheel rim was caused by an impact that had caused the deformed damage to it. See photos 7 - 10 below.



**Photo 7** shows a general view of the right centre brake drum and brake pad of the Insured Vehicle after the wheel rim was removed. Upon closer examination, we did not observe any damages to the brake drum.



**Photo 8** shows a close up view of the rear left top brake drum pad of the Insured Vehicle. Upon closer examination, we did not observed any damages to the brake drum pad.





**Photo 9** shows a general view of the rear left brake drum of the Insured Vehicle. Upon closer examination, we did not observe any damages to the exterior surface of the brake drum.



**Photo 10** shows a general view of the rear left brake drum of the Insured Vehicle. Upon closer examination, we did not observe any damages to the interior surface of the brake drum.

12. From the Singapore Accident Statement which was made by Mr Wang Zengqiang (herein referred to as “**Mr Wang**”), who is an employee of Sankyu Singapore Pte. Ltd. and the driver of the Insured Vehicle; we note that the fire to the Insured Vehicle had started at a time while he was driving the Insured Vehicle. Mr Wang was first alerted of the fire when he saw smoke emitting from right centre wheel of the Insured Vehicle.
13. We managed to speak to Mr Wang where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
14. According to Mr Wang, on 15 May 2023 at about 1724hrs he had collected cargo from Clementi Distribution Centre located at 11 Clementi Loop and was headed to Tuas Megaport via AYE (Tuas). As he was travelling along the AYE just after the Tiger Brewery, he felt some resistance coming from the right centre wheel of the Insured Vehicle. He stopped along the expressway to inspect the right centre wheels. He observed that there was too much heat generating from the right centre wheels, causing it to jam and emit smoke. The wheels had produced too much heat in the brakes and caused the wheels to catch fire.
15. Wang attempted to put out the fire with a fire extinguisher but to no avail. He immediately called his supervisor, Mr Raymond Tan (herein referred to as “**Mr Tan**”) at around 1730 hours who immediately called 995 and made towing arrangements. We managed to speak to Mr Tan. Mr Tan arrived at the incident scene by 1800 hours. He mentioned that the SCDF and police were already at the incident scene by the time he arrived. Firefighters had extinguished the fire by 1800 hours but they continued to douse the Insured Vehicle with water till 1930 hours as the wheels were still hot from the fire. Mr Tan informed us that the tow truck personnel, technician and tyre replacement personnel had already arrived at the incident but were on standby. The SCDF fire investigator and police officers then took down Mr Wang’s and Mr Tan’s statement.
16. After the SCDF had left the incident scene around 2000 hours, the centre tyres and wheel rims were replaced and the Insured Vehicle was towed back to THL.



17. We asked Mr Tan why the insurance report was only made on 24 May 2023. He mentioned that post- incident he had called the insurance broker, Kyoritsu Insurance Brokers Singapore Pte. Ltd. (herein referred to as “**Kyoritsu**”) who arranged for a loss adjuster company to survey the Insured Vehicle. However the survey was for the cargo that the Insured Vehicle was carrying at the time of incident. Mr Tan proceeded with the repairs to the Insured Vehicle. It was only about a week later that the insurance broker informed Mr Tan that the Insured Vehicle is insured by Tokio Marine Insurance and an insurance report needed to be made. Hence the insurance report was made by Mr Wang at Sng Ah Tee Motor & Panel Service Pte. Ltd. on 24 May 2023 at 1728 hours.
18. To the best of his recollection, Mr Wang mentioned he had not experienced any mechanical or electrical problems with the Insured Vehicle. 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.
19. With regards to the history of the Insured Vehicle, we were able to gather from Mr Tan that the Insured Vehicle was purchased new in May 2013.
20. During the course of our investigations, we were able to obtain from Medha Kong of Kyoritsu, the latest servicing records of the Insured Vehicle before the incident occurred.
21. Pertaining to the maintenance aspect, the latest servicing was done by THL about 2 weeks prior to the fire incident. Refer to Invoice 1 below.

**TIAN HWEE LONG ENTERPRISES**

ACRA REG NO. 40460900K GST REG NO. 201326504E

No. 51 Gul Drive, Singapore 629496

Tel: 62616431 Fax: 62613023 eMail: tianhweelong@gmail.com

**Sankyu (S) Pte. Ltd.**  
11 Clementi Loop  
Singapore 129823  
Tel: 6469 3911 Fax : 6469 7155

Attn: Raymond Tan (TPT Dept)



**TAX INVOICE No. :** SAN-23 162  
**DATE :** 24/04/2023  
**TERMS :** 30 DAYS  
**CURRENCY :** SGD

Services : Repair & Services  
Chassis No. : TRC8055K

20'

Description	Qty	Unit Price	Amount
Reverse Buzzer (YC-313)	1	\$ 15.00	\$ 15.00
Bulbs	6	\$ 0.60	\$ 3.60
50 Km/h Sign	1	\$ 1.50	\$ 1.50
Hub Cap with Grease	1	\$ 38.00	\$ 38.00
Brake Chamber Spring	2	\$ 15.00	\$ 30.00
New Twistlock	1	\$ 40.00	\$ 40.00
Housing Bolt & Locknut	1	\$ 2.00	\$ 2.00
Brake Chamber Diaphragms (T-30 Original)	1	\$ 15.00	\$ 15.00
Equipments & Labour Charges for Checking Lighting, Air Leaking, Adjusting of Brakes (All 4 Sides), Knocking and Straightening of Bumper, Patching and Welding of Mud Guard & Bumper, Changing Damage Parts with Paint Works.			\$ 65.00

Total : \$ 210.10  
GST @ 8% : \$ 16.81  
Amount Payable including GST : \$ 226.91

Authorised Signature

All Payment Made Payable to TIAN HWEE LONG ENTERPRISES

**Invoice 1** shows the latest servicing done on the Insured Vehicle on 24 April 2023 at THL (arrowed).

22. Upon investigating the list of items in the servicing record provided, we did not find any major overhaul done to the Insured Vehicle and the items replaced in the servicing would not post a risk to the fire.



### **Incident Scene Photographs**

23. We were able to obtain photographs of the Insured Vehicle from Mr Wang taken at the incident location. The photographs were taken during and after the fire was extinguished.

24. Our examination of the photograph revealed that the Insured Vehicle was observed to be tilted down to right side and the fire at the material time of incident. 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 11 - 13 below.



**Photo 11** shows flames emitting from the right centre portion Insured Vehicle (arrowed) of the Insured Vehicle at the material time of incident. The photograph had showed 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.




**Photo 12** shows a firefighter dousing the right centre wheels of the Insured Vehicle with water post- incident (arrowed). Generally, the information that could be gathered from the incident scene photographs provided by Mr Tan had corresponded to the events that he had related to us, which is SCDF had responded to the incident.



**Photo 13** shows a close up view of the water being doused onto the right centre tyres of the Insured Vehicle with water post- incident (arrowed). Generally, the information that could be gathered from the incident scene photographs provided by Mr Tan had corresponded to the events that he had related to us, which is the fire had started from the right centre wheel.



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 Wang 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, as Mr Wang was still able to bring the Insured Vehicle to a stop and switch of the running engine.
26. The possibility of the fire being due to electrical in nature would be unlikely as the electrical systems of the Insured Vehicle was still working and the Insured Vehicle was still able to be operated, as Mr Wang was still able to bring the Insured Vehicle to a stop and switch off the running engine.
27. The possibility of the fire being due to external factors (foreign material(s) stuck on hot surfaces, arson and sabotage amongst others) would seem likely as in our opinion, the fire was cause due to the right centre outer wheel rim contacting the road surfaces where it was travelling on, where metal material of the wheel rim rubbing on the road surfaces causing sparks that had ignited the combustible materials in the vicinity like the rubber tyres, wirings and spreading onto the wheel panel of the Insured Vehicle. We are in view that the right centre outer tyre had suffered a puncture causing the right outer wheel rim to contact the road surfaces resulting in the fire. As we observed that the dent and cracked damages on the rear right outer wheel rim was due to an impact resulting in the damages. The puncture to the right centre outer tyre had caused the Insured Vehicle to tilt down slightly to the right result in the right centre outer wheel rim to contact the road surfaces and causing the damages as well.
28. Our checks with both local and international bodies and associations had revealed that at the time of writing this report, there was no manufacturer recall to the Insured vehicle.



### Vehicle Recall Details

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

Owner ID Type Company	Owner ID 116E
Vehicle No. TRC8055K	Make/Model SIN TRANS ENGRG P L/ 20' DUAL AXLE SKELETAL CONTAINER TRAILER
Engine No.: -	Chassis No.: STEPL266013
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 external factors. For this particular case, the fire had originated from the right centre wheel rim 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. Our investigations had also revealed that at the time of writing this report, there was no manufacturer recall of similar make and model vehicle as the Insured Vehicle that may possibly pose a fire risk.



32. 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.

**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)*

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