

Your Ref: SNM22D207285/C01/LEWLC
Our Ref : CS4/CTI22010135/N

21 October 2022

M/s China Taiping Insurance (Singapore) Pte Ltd
3 Anson Road #16-00
Springleaf Tower
Singapore 079909
(Motor Claims Department)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE XE 5826R ON 7 OCTOBER 2022

1. We refer to your letter dated 12 October 2022 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle XE 5826R (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 19 October 2022 at the premises of Goldbell Leasing (herein referred to as "**Goldbell**") located at 10 Tuas Avenue 18, Singapore 638894.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: XE 5826R
Make / Model	: MITSUBISHI FUSO FV70HJD2VDEA
Chassis No	: FV70HJA10001
Year of Registration	: Aug 2020
Mileage	: N.A. (wiring affected)

5. The exterior body of the Insured Vehicle had sustained fire damages more towards the right rear portion as well as its rear right wheels and tyres. The affected exterior parts had included the rear right body panel and the rear right wheel rims and tyres. The engine compartment and interior compartment seem to be relatively unaffected by the fire. See photos 1 – 8 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 rear portion of the Insured Vehicle at the time of our inspection. The left portion of the Insured Vehicle was relatively unaffected by the fire.



Photo 4 shows the general view of the right rear 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 rear wheel and rim area as well as its right rear portion. Affected parts had included the right rear panels, right rear wheels and rims.



Photo 5 shows a closer view of the right rear portion of the Insured Vehicle at the time of our inspection. The fire damage was observed to be at its right rear portion. The container bin was observed to be affected by the fire.



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



Photo 7 shows a general view of the engine compartment of the Insured Vehicle at the time of our inspection. The engine compartment of the Insured Vehicle was observed to be unaffected by the fire.



Photo 8 shows the interior compartment of the Insured Vehicle at the time of inspection. The interior compartment was relatively unaffected 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 rear portion of the Insured Vehicle, around the right rear wheel rims and tyres of the Insured Vehicle. This can be determined from the nature of the fire damage which was more extensive at the rear right 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 rear right wheel rims and tyres of the Insured Vehicle.
8. Upon closer examination of the right rear portion of the Insured Vehicle as well as around the immediate vicinity to where the fire had likely started, we had observed that the right rear portion had sustained the highest heat intensity burn marks (whitish burn marks) that were found on the surface of it. We focused our findings to the right rear wheel rim and tyres area and identify that the moving components in the area are the drum brakes system and the wheel drum itself.
9. We removed the right rear wheel rims of the Insured Vehicle to inspect the brake drum 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. See photos 9 - 14 below.



Photo 9 shows the right rear portion of the Insured Vehicle after the right rear wheel rims and tyres had been removed. The whitish burn marks (arrowed) are a result of exposure to prolonged heat intensity.



Photo 10 shows a general view of the right rear axle of the Insured Vehicle after the wheel rim was removed. Upon closer examination, we did not observe any damages to the right rear axle.



Photo 11 shows a close up view of the right rear top brake drum pad of the Insured Vehicle. Upon closer examination, we did not observed any damages to the brake drum pad.



Photo 12 shows a general view of the right rear bottom brake drum pad of the Insured Vehicle. Upon closer examination, we did not observed any damages to the brake drum pad.



Photo 13 shows a general view of the right rear brake drum of the Insured Vehicle. Upon closer examination, we did not observe any damages to the exterior surface of the brake drum.



Photo 14 shows a close up view of the right rear brake drum of the Insured Vehicle. Upon closer examination, we did not observe any damages to the exterior surface of the brake drum.

10. From the Singapore Accident Statement which was made by Mr Karuppiah Ariyakkannan (herein referred to as “**Mr Karuppiah**”), who is 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 Karuppiah was first alerted of the fire when he saw smoke emitting from rear right wheel of the Insured Vehicle.
11. We managed to speak to Mr Karuppiah where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
12. According to Mr Karuppiah, on 7 October 2022 around 1400 hours he had loaded up the Insured Vehicle at Ang Mo Kio Avenue 5 and was headed to Tanah Merah Road. He drove alone. He travelled via the TPE towards ECP and took the Tanah Merah exit. He suddenly noticed that the air brake pressure of the Insured Vehicle had decreased. He then heard a loud sound coming from the right side of the Insured Vehicle. He switched off the engine and alighted from the Insured Vehicle.
13. He saw fire from the right rear tyres. He took out a bottle of water and attempted to put out the fire but to no avail. He then called 995. Whilst he was making the call, a motorist stopped by the side and introduced himself to Mr Karuppiah as an off-duty police officer. The officer also called 995. SCDF arrived within 15 minutes. The police were also present at the incident scene. The fire was extinguished in 10 minutes.
14. Mr Karuppiah proceeded to inform his boss. His boss arrived shortly after. The police took Mr Karuppiah’s statement. Mr Karuppiah informed us that all the tyres and rims at the right rear portion of the Insured Vehicle had been completely burnt as a result of the fire. Hence a mechanic was called to change the right rear rims and tyres before the Insured Vehicle could be towed. The mechanic arrived at about 1900 hours.
15. Mr Karuppiah mentioned that since he could not unload the Insured Vehicle after 2000 hours, it was parked at an open carpark near East Coast Park. Mr Karuppiah made towing arrangements the following day, on 8 October 2022. The Insured Vehicle was towed to Goldbell. Mr Karuppiah made the insurance report at Goldbell on 10 October 2022 at 1600 hours.

16. To the best of his recollection, Mr Karupiah 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.
17. With regards to the history of the Insured Vehicle, we were able to gather that the Insured Vehicle was purchased new in 2020 from Goldbell. Mr Karupiah is the only driver to the Insured Vehicle and it is daily driven.
18. Pertaining to the maintenance aspect, the Insured Vehicle is serviced in- house. The servicing record provided by the company for the Insured Vehicle, shows that its latest servicing was done on 31 March 2022.
19. During the course of our investigations, we were able to obtain, the latest servicing records of the Insured Vehicle before the incident occurred. Minor servicing was done. The torsion bar bush and right headlamp halogen bulb were replaced. The light wiring was also repaired. Refer to Invoice 1 below.



VEHICLE MAINTENANCE JOB CARD					
Work Order No.			VSR NO:	V103120-100778	
VEHICLE INFORMATION					
VEHICLE NO:	→ 2E 5826D	MAKES&MODEL:	MITSUBI		
DATE&TIME IN:	→ 31/03/2022 09:30S	DATE&TIME OUT:	31/03/2022 15:20P		
MILEAGE:	175470	FUEL BALANCE:			
CUSTOMER PARTICULARS					
Name:	CDL		Personnel:	Drive/Fleet Owner	
Contract No:			E-MAIL:		
Feedback on Vehicle:	Minor SVC				
Disclaimer: Customers are required and reminded to remove all valuable and personal items from the vehicle before handing over. The workshop will not be responsible for any loss of items from the vehicle					
Customer Handover Signature			Customer Collection Signature		
REPAIR /MAINTENANCE INFORMATION					
Type:	SVC A	SVC B	SVC C	CM	OTHERS(indicate Below)
Repair/Parts Changed:	<div style="border: 2px solid red; border-radius: 50%; padding: 5px;"> Minor SVC: check all light; greasin car part replace torsion bar bush & top check and repair all light wiring </div>				
Recommended:					
Disclaimer: The workshop will not be liable for the warranty of parts and repairs that were not stated in the above job card. Recommended repairs are detected during the course of work and will only be carried at the discretion and					
TECHNICIAN:	SUPERVISOR/OC:		TECHNICIAN INCENTIVE HOURS(TOTAL):		
Lim Bin					

Invoice 1 shows the last servicing done on the Insured Vehicle in- house on 31 March 2022 (red arrows). The servicing package had included minor servicing. The torsion bar bush and right headlamp halogen bulb were replaced. The light wiring was also repaired (circled).

20. 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

21. We were able to obtain from Mr Karuppiah, photographs of the Insured Vehicle which he had taken during the fire and 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 Karuppiah.
22. 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. 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 15 - 17 below.



Photo 15 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 Karuppiah, which is the fire had started from the right rear portion of the Insured Vehicle (arrowed).



Photo 16 shows the Insured Vehicle at the incident scene after the fire was extinguished. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Karuppiah, which is the SCDF was present at the incident location (arrowed).



Photo 17 shows the damaged right rear rim and tyre of the Insured Vehicle at the incident scene after the fire was extinguished (arrowed). In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Karuppiah, which is the right rear rims and tyres of the Insured Vehicle had been completely burnt as a result of the fire and had to be replaced before the insured Vehicle could be towed to Goldbell.

23. 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 Karupiah 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, an overheated engine would have caused the Insured Vehicle to stall. However in this case, Mr Karupiah was the one who heard a loud sound from the right rear portion 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.
24. 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 Karupiah was still able to bring the Insured Vehicle to a stop and switch off the running engine.
25. 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 due to the right rear 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 into the cabin of the Insured Vehicle. We are in view that the right rear outer tyre had suffered a puncture causing the right rear outer wheel rim to contact the road surface resulting in the fire. As we observed that the dent and cracked damages on the right rear outer wheel rim was due to an impact resulting in the damages. The puncture to the right rear outer tyre had caused the Insured Vehicle to tilt down slightly to the right result in the right rear outer wheel rim to come into contact with the road surface, causing damages as well.
26. 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 Motorcycle that may possibly be related to this incident. See search result from LTA below.



Vehicle Recall Details

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

<i>Owner ID Type</i>	<i>Owner ID</i>
<i>Company</i>	753C ←
<i>Vehicle No.</i>	<i>Make/Model</i>
XE5826R ←	mitsubishi/ FUSO FV70HJD2VDEA
Engine No.: 470912C0518410	Chassis No.: FV70HJA10001
Recall Details: No Recall Detail records ←	

Conclusion

27. 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 rear right wheel rim of the Insured Vehicle.
28. 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.

29. 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.

**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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