



Your Ref: SNM20D200911
Our Ref : CS/CTI20002982/N

28 February 2020

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 XD 1749L ON 18 FEBRUARY 2020**

1. We refer to your request dated 21 February 2020 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle XD 1749L (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 21 February 2020 at the premises of Sng Ah Tee Motor & Panel Service Pte. Ltd. (herein referred to as "**SAT**") located at Block 3, Pioneer Road North, #01-18, Singapore 628457.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: XD 1749L
Make / Model	: ISUZU CYZ52L
Chassis No	: JALCYZ52L77000086
Year of Registration	: September 2007
Mileage	: N.A. (battery melted)

5. The Insured Vehicle was observed to have sustained extensive fire damage at its frontal portion. The body panels at the frontal portion and the undercarriage components at the front underside were found to have been burnt to char. Parts inside the interior compartment were also observed to be completely burnt, leaving charred skeletal remains. The engine and transmission of the Insured Vehicle were also affected.

6. At the time of inspection, we did not find any unusual skeletal remains which could have suggested that there was possible modification(s) and/or additionally fitted electronic and/or electrical component(s) on the Insured Vehicle. See photos 1 – 6 below.



Photo 1 shows a general view of the front body of the Insured Vehicle at the time of inspection. The Insured Vehicle was observed to have sustained extensive fire damage at its frontal portion. The body panels at the frontal portion and the undercarriage components at the front underside were found to have been burnt to char.



Photo 2 shows a general view of the front left body of the Insured Vehicle at the time of inspection. The Insured Vehicle was observed to have sustained extensive fire damage at its frontal portion. The body panels at the frontal portion were found to have been burnt to char.



Photo 3 shows the interior compartment of the Insured Vehicle. All the parts inside the interior compartment were found to be burnt and/or melted. Its front seats, rear seats, roof upholstery, carpet and various trims were all burnt and/or melted as a result of the fire.



Photo 4 shows the underside of the Insured Vehicle, at its front left area. The various undercarriage components at the front underside of the Insured Vehicle were observed to be affected. This had included components of the braking system and steering system.



Photo 5 shows the engine compartment, which was located at the back of the Insured Vehicle's front cabin. The various parts and components within the engine compartment of the Insured Vehicle were all affected by the fire. This had included the engine of the Insured Vehicle.



Photo 6 shows a general view of the rear left body of the Insured Vehicle. The rear portion was observed to be relatively unaffected by the fire.

Investigation and Technical Analysis

7. From the Singapore Police Report No. L/20200218/7018, which was made by Mr Ronly Lee Wai Choy (herein referred to as "**Mr Lee**"), we note that the fire to the Insured Vehicle had started at a time when he was driving the Insured Vehicle. Mr Lee had first heard an unusual sound coming out from the back of the Insured Vehicle. After he stopped the Insured Vehicle along the side of a road, he saw fire coming out of the front left tyre.
8. We spoke to Mr Lee where through telephone conversation, we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.
9. According to Mr Lee, on 18 February 2020 at about 0950 hours, he was driving the Insured Vehicle from Seletar with a load of small stones and heading to Senoko Drive. Whilst travelling along Senoko Drive, he heard an unusual sound coming from the Insured Vehicle. He stopped the Insured Vehicle along the side of the road to check.

10. Upon alighting, he saw flames around the front left wheel area of the Insured Vehicle. Mr Lee attempted to put out the fire using the fire extinguisher but to no avail. Mr Lee then immediately called SCDF for assistance. The frontal portion of the Insured Vehicle was already engulfed in flames by the time SCDF officers had arrived less than 10 minutes later. The fire was subsequently extinguished by firefighters. Mr Lee called his manager to inform him of the incident whilst SCDF officers conducted their preliminary investigation. Mr Lee's statement was also taken by police officers who were present at the incident scene. The tow truck arrived approximately 2 hours later and the Insured Vehicle was eventually arranged to be towed to SAT after clearance was obtained from the attending SCDF officers and police officers.
11. With regards to the history of the Insured Vehicle, we were informed by Mr Lee that he is presently employed by Sing Tec Construction Pte. Ltd., who is also the registered owner of the Insured Vehicle. He was assigned the Insured Vehicle and has been the main driver of the Insured Vehicle about 8 months. As far as he can recall, there has not been any mechanical or electrical problem(s) with the Insured Vehicle. It was sent for servicing and maintenance regularly by him with all documents kept by his company who performs the periodic servicing in-house.
12. During our conversation with Mr Lee, we were informed that he had taken some photographs whilst at the incident scene. These were duly forwarded to us for our review.
13. The photographs taken by Mr Lee had showed the Insured Vehicle parked along the side of a roadway with flames engulfing its frontal portion.
14. Upon further examination of the photographs, we had also noted that there was no unusual foreign material(s) and/or object(s) on the ground in the immediate area of where the Insured Vehicle had stopped. Burnt residual remains were however observed on the road surface. See photos 7 – 9 below.



Photo 7 shows a general view of the Insured Vehicle with its frontal portion engulfed in flames. The Insured vehicle could be seen parked along the side of a roadway. Generally, the information that could be gathered from the incident scene photographs provided by Mr Lee had corresponded to the events that he had related to us.



Photo 8 shows a general view of the front body of the Insured Vehicle at the incident scene after the fire was put out. Generally, the information that could be gathered from the incident scene photographs provided by Mr Lee had corresponded to the events that he had related to us, which is SCDF had responded to the incident (arrowed)



Photo 9 shows a general view of the Insured Vehicle at the incident scene after the fire was extinguished. SCDF officers could be seen conducting a preliminary investigation. Burnt residual remains were observed on the road surface.

15. During the course of our investigations, we managed to obtain from the registered owner of the Insured Vehicle, Sing Tec Construction Pte. Ltd., a document relating to the latest servicing and maintenance aspect of the Insured Vehicle. Upon reviewing this document, we note that the Insured Vehicle was last serviced on 3 February 2020, approximately 2 weeks before the fire. The servicing package had included the changing of engine oil, oil filter, air filter and fuel filter. See Invoice 1 below.

SING TEC DEVELOPMENT PTE LTD (ROC & GST REG No.: 200412683E)
SING TEC CONSTRUCTION PTE LTD (ROC & GST REG No.: 19904598M)
 16 Kian Teck Way Singapore 628749
 Tel: 6316 2108 Fax: 6316 2109 Email: info@singtec.com.sg

SING TEC

SERVICE & MAINTENANCE REPORT

No: 4673

Customer:

Sing Tec
W002

Date: 03/02/2020

Location:

Contact No:

Machine HRS:

Machine Model & Serial No / Engine Nos:

ISUZU

Machine No: XD1749L

FLUID CHECK

- ☐ Engine oil / Filter
- ☐ Hydraulic oil / Filter
- ☐ Cooling Water
- ☐ Transmission oil
- ☐ Steering device oil
- ☐ Travel device oil
- ☐ Fuel filter / Filter
- ☐ Battery electrolyte
- ☐ Brake oil
- ☐ Gear oil of final drive case
- ☐ Gear oil of axle case
- ☐ Gear oil of hub reduction case

GREASE CHARGE

- ☐ Steering bearing
- ☐ Centre joint
- ☐ Control lever
- ☐ Front joint pin
- ☐ Front axle / pin
- ☐ Front driver shaft
- ☐ Blade

ENGINE

- ☐ Performance
- ☐ Air cleaner / element
- ☐ Starter / alternator
- ☐ Radiator (cool head bolt tightening if necessary)

HYDRAULIC SYSTEM

- ☐ Boom cylinder (LH, RH) / hose
- ☐ Arm cylinder / bucket cylinder
- ☐ Main pump (front / rear) hose
- ☐ Gear (pilot) pump / hose
- ☐ Control valve (LH, RH) / pipe
- ☐ Travel motor / reduction device (RM, LH)
- ☐ Brake valve
- ☐ Centre joint / hose

TRACK TYPE

- ☐ Tiller (LH, RH) / pocket (LH, RH)
- ☐ Upper and lower rollers (LH, RH)
- ☐ Track shoe and link (LH, RH)
- ☐ Track tension / track adjuster

ELECTRICAL SYSTEM

- ☐ Start switch / safety relay
- ☐ Battery relay / volt Regulator
- ☐ Valve controller / solenoid valve
- ☐ Fuse box
- ☐ Preheat resistor / plug / volt start switch
- ☐ Gauge panel / control unit
- ☐ Horn (relay / switch)
- ☐ Wiper motor (switch)
- ☐ Heater (switch)
- ☐ Head Lamp (bulb / switch)
- ☐ Turn signal lamp (bulb / switch)
- ☐ Car cooler (hose, fan)
- ☐ Car Stereo
- ☐ Fuel pump
- ☐ Sensor (fuel, thermal)
- ☐ Switch (engine & Hyd Oil level)

WHEEL TYPE

- ☐ Steering pump cylinder handle
- ☐ Foot brake / parking brake (disc, booster, air dryer, air tank, air compressor)
- ☐ Clutch pedal (disc)
- ☐ Transmission / axle (FRY, RR)
- ☐ Final drive / brake
- ☐ Wheel nut / tyre

DURANCE

- ☐ 100 Hours maintenance service
- ☐ 500 Hours maintenance service
- ☐ 1,000 Hours maintenance service
- ☐ 1,500 Hours maintenance service
- ☐ 2,000 Hours maintenance service

SERVICE RENDERED

SERVICING DONE.
Pumping Grease.

PARTS USED

change

Air filter

fuel filter

oil filter

engin oil

SFF 0207

1230 FW

P502362

J-137

27 kilos

Date	From	Mileage (KM)	To	Total Mileage	From	To	Total Work Hours	Remarks
Completion Date	Vehicle No.			Service By			Start	

* We certify the correctness of the above & that the job has been carried out to my entire satisfaction & acceptance

XD1749L

Customer's Chop & Sign

03/02/2020

Date

Name:

Account/Billing Copy

Invoice 1 shows the latest servicing done on the Insured Vehicle on 3 February 2020 at Sing Tec Construction Pte. Ltd. (arrowed). The servicing package had included the changing of engine oil, oil filter, air filter and fuel filter (circled).

16. Generally, there seems to be no inherent and/or recurring mechanical and/or electrical issue(s) to the Insured Vehicle.

17. Given the circumstance of incident described by Mr Lee, the fire had occurred while the Insured Vehicle was being driven/engine in operation. Common causes of fire arising from a vehicle that is being driven and/or with its engine in operation include engine overheating, leakage of fluid onto hot surfaces or electrical nature.
18. Fire due to an overheated engine was unlikely as the Insured Vehicle was still able to be operated after the sound was heard. Mr Lee was still able to drive the Insured Vehicle, bring it to a complete stop along the side of a roadway before alighting to check. In the event if the Insured Vehicle's engine had overheated, the mechanical parts inside the engine would first seize causing the engine to stall. Mr Lee would have likely experienced engine stalling shortly after seeing the smoke, rendering the Insured Vehicle undriveable.
19. Furthermore, the engine was located at the back of the Insured Vehicle's front cabin (refer to photograph 5 below). As seen from the photographs, the area was not a covered area. Heat generated from engine operation would have been easily dissipated out whilst the Insured Vehicle was moving, hence fire resulting from an engine overheat is also unlikely.
20. Leakage of fluid within the engine compartment may cause a fire to be ignited when the leaked fluid comes into contact with hot surfaces, like an exhaust pipe. The leaked fluid could possibly reach temperature sufficient for it to self-ignite. However as discussed in the aforesaid paragraph, the temperature within the engine compartment would have unlikely been able to reach temperature that could result in leaked fluid to self-ignite. Fire due to self-igniting fluid leakage would then seem unlikely for this case.
21. Since engine overheating and leakage of fluid were both unlikely the cause of fire, the most probable cause would then be electrical in nature to the wirings of the Insured Vehicle. The rubber insulation of the wires and/or wiring harness may lose its flexibility and become hardened after a prolong period of time. The hardened rubber insulation may then become brittle and break off bits by bits, exposing live wires that may come into contact with each other and/or the metal body of the vehicle, creating sparks that could ignite a fire. Unlike countries with different seasons, the hot local climate enhances the deterioration of any rubber material parts or components of a motor vehicle, in particular for those contained within its engine compartment.

22. Our checks with both local and international bodies and associations revealed that at the time of writing this report, there is no manufacturer recall of similar make and model vehicle as the Insured Vehicle. See screenshot below showing the search result from LTA.

Vehicle Recall Details

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

Owner ID Type: Company	Owner ID: 59EM
Vehicle No. XD1149	Make/Model SUZUKI CY250

Engine No.
6W61406564

Chassis No.
JALCY252L77000086

Recall Details:

No Recall Detail records

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Conclusion

23. For this case, we are of the view that the fire had originated around the left front body area of the Insured Vehicle. The cause of fire was likely to be of electrical in nature.
24. The information and documents gathered during the course of our investigation did not suggest that the cause of fire was due to poor maintenance and/or recurring electrical issue(s).
25. 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.

26. 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*
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Technical Investigation & Reconstructionist (SAE-A)*

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