LKK 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

Your Ref: SNM21D203738/c01 12 July 2021
Our Ref : CS/CTI21007366/N

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 GX 6151Z ON 3 July 2021

1. We refer to your letter dated 6 July 2021 and the instructions therein.

2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GX 6151Z (herein referred to as **"Insured Vehicle"**) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 8 July 2021 at the premises of Goldbell located at 8 Tuas Avenue 18, Singapore 638892.

4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: GX 6151Z
Make / Model	: NISSAN NV200 1.5L MT ABS AIRBAG 2WD 6DR EURO 5
Chassis No	: VSKYBAM20Z0101019
Year of Registration	: August 2015
Mileage	: N.A. (battery melted)

5. The Insured Vehicle was observed to have sustained severe 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. See photos 1 – 4 below.

Photo 1 shows the general view of the frontal 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 rear 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 interior compartment of the Insured Vehicle at the time of our inspection. Its interior compartment was completely burnt.

Photo 4 shows 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 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 within the engine compartment of the Insured Vehicle, somewhere around the left portion of the engine compartment due to the nature of the fire damage which was more extensive at the left portion. This can also be determined from the burn pattern and the high heat intensity burn marks (whitish burn marks) found on the left portion of the bonnet of the Insured Vehicle. The whitish burn marks are a result of exposure to prolonged heat intensity. See photos 7 & 8 below.

Photo 7 shows the right body of the Insured Vehicle. The nature of the fire damage was less extensive at the right portion (arrowed).

Photo 19 shows the burn pattern and whitish burn marks that were found on the left front fender of the Insured Vehicle (circled). Such whitish burn marks are a result of exposure to prolonged heat intensity, which may indicate where the fire had started.

8. Upon closer examination of the left portion of the engine compartment, which was where the fire to the Insured Vehicle had likely started, we had found traces of greenish residue on several stretches of burnt wirings leading from the ECM. 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. This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature. See photos 9 - 12 below.

Photo 9 shows the burnt wirings leading from the ECM around the left portion of the engine compartment (circled), which is in the immediate vicinity where the fire to the Insured Vehicle had likely started.

Photo 10 shows a closer view of the burnt wirings leading from the ECM around the left portion of the engine compartment, which is in the immediate vicinity where the fire to the Insured Vehicle had likely started. We noticed greenish residue on several stretches of burnt wirings (arrowed). 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.

Photo 11 shows a closer view of the greenish residue found on several stretches of burnt wirings leading from the ECM (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

Photo 12 shows a close up view of the greenish residue found on several stretches of burnt wirings leading from the ECM (red arrows). The presence of such greenish residue suggests occurrence of an electrical short circuit.

9. From the Singapore Accident Statement, which was made by Mr Yong Teen Wah (herein referred to as **"Mr Yong"**), we note that the fire to the Insured Vehicle had started at a time while he was driving. He was alerted of the fire when he saw smoke emitting from the engine compartment.

10. We managed to speak to Mr Yong where we were able to gather further information pertaining to the incident as well as information pertaining to the history of the Insured Vehicle.

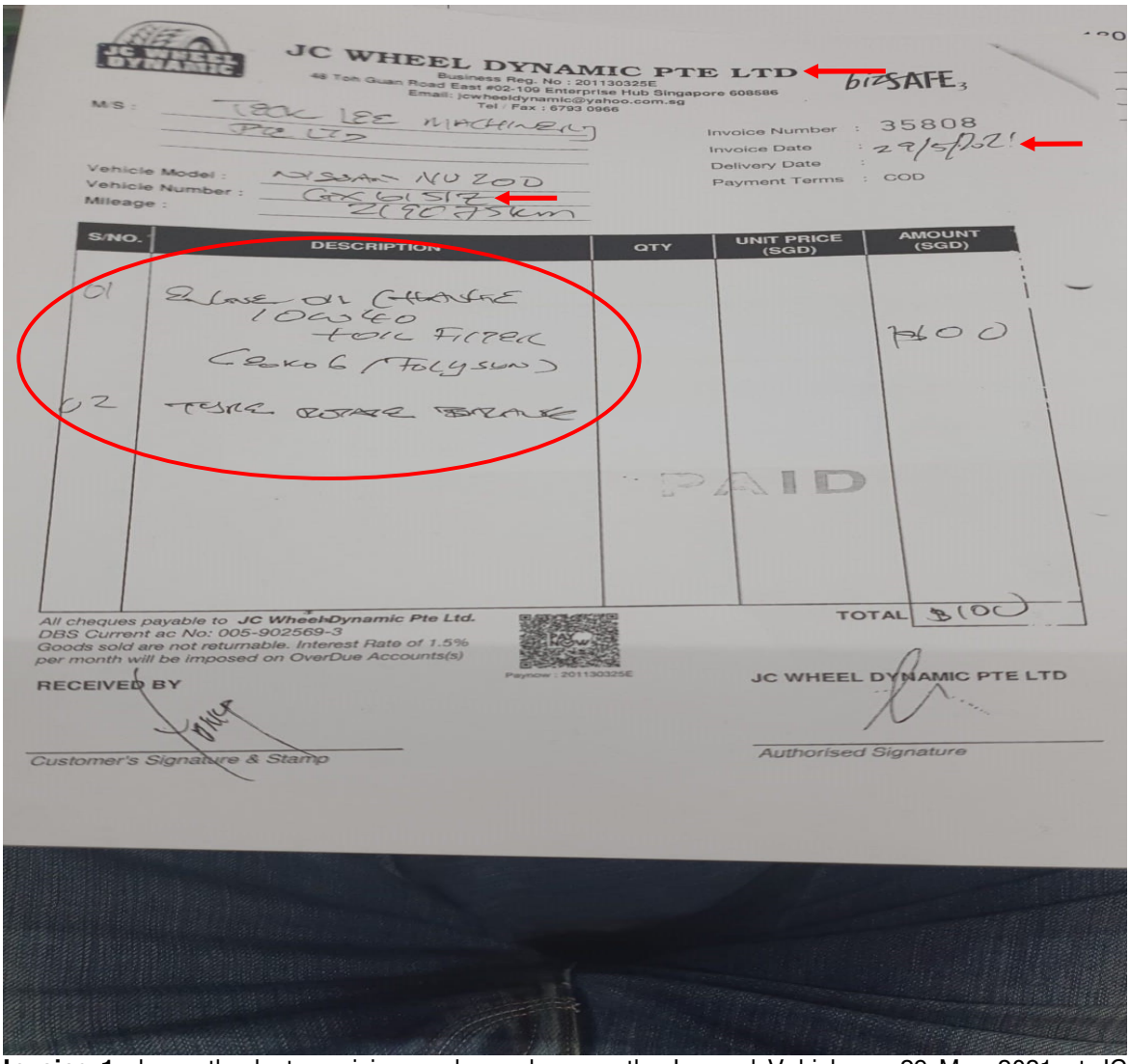
11. Mr Yong is a driver for Teck Lee Machinery Pte. Ltd. which supplies and repairs generators as well as provide electrical troubleshooting services. According to Mr Yong, at about 0900 hours on 3 July 2021, he was stationary at the T-junction of Corporation Road and Boon Lay Avenue when he saw smoke emitting from the engine compartment. He then made a right turn into Corporation Road and switched off the engine. He got out of the Insured Vehicle and saw flames from the bottom left portion of the Insured Vehicle. He called the owner, Mr Darren who made towing arrangements. SCDF took about 10 minutes to arrive and took about 5 minutes to extinguish the fire.

12. Mr Yong assisted the SCDF in their preliminary investigations. The tow truck arrived by 1200 hours and the Insured Vehicle was towed to Goldbell. Mr Yong made the insurance report on 5 July 2021 at Goldbell at 1507 hours.

13. With regards to the history of the Insured Vehicle, we were able to gather from Mr Darren that the Insured Vehicle was purchased in 2017. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle.

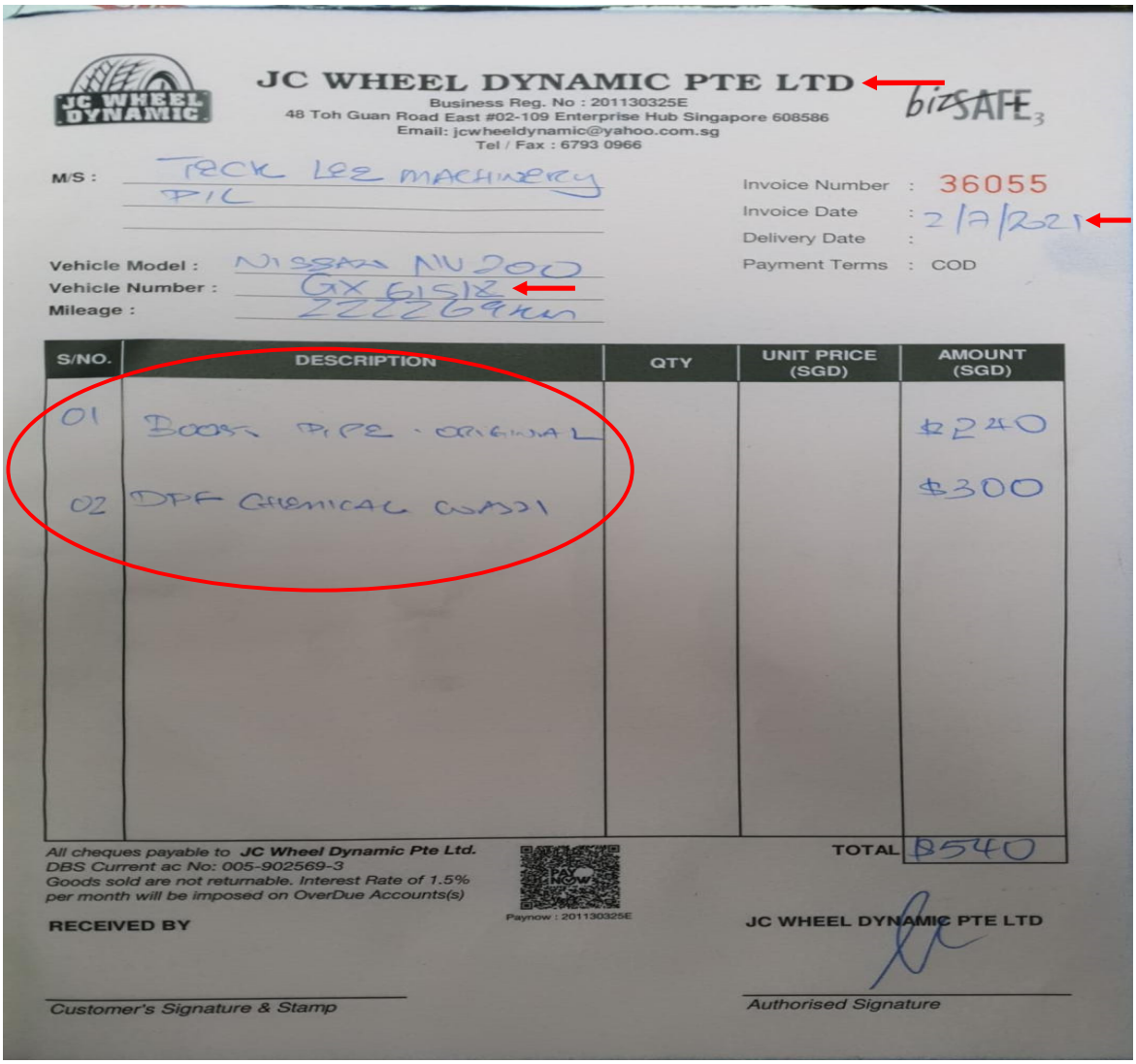
14. Pertaining to the maintenance aspect, Mr Tan sends the Insured Vehicle for periodic servicing.

15. During the course of our investigations, we were also able to obtain from Mr Darren, documents relating to the latest servicing records of the Insured Vehicle. The Insured Vehicle was last serviced at JC Wheel Dynamic Pte. Ltd. (herein referred to as **"JC"**) on 29 May 2021, almost 2 months before the incident occurred. The servicing package had included the changing of engine oil and oil filter. The tyres were also rotated. Refer to Invoice 1 below.



Invoice 1 shows the last servicing package done on the Insured Vehicle on 29 May 2021 at JC Wheel Dynamic Pte. Ltd. (arrowed) which included changing of engine oil and oil filter. The tyres were also rotated (circled).

16. Mr Darren mentioned that about 2 months after the servicing was done, the Insured Vehicle had stalled. The Insured Vehicle was towed to JC. The boost pipe was replaced. The diesel particulate filter (DPF) was also chemically washed. Refer to Invoice 2 below.



JC WHEEL DYNAMIC PTE LTD
Business Reg. No : 201130325E
48 Toh Guan Road East #02-109 Enterprise Hub Singapore 608586
Email: jcwheeldynamic@yahoo.com.sg
Tel / Fax : 6793 0966

M/S : TECK LEE MACHINERY PTE

Invoice Number : 36055
Invoice Date : 2/7/2021
Delivery Date :
Payment Terms : COD

Vehicle Model : NISSAN NV 200
Vehicle Number : GX 6151Z
Mileage : 222694km

S/NO.	DESCRIPTION	QTY	UNIT PRICE (SGD)	AMOUNT (SGD)
01	BOOST PIPE - ORIGINAL			$240
02	DPF CHEMICAL WASH			$300
			TOTAL	$540

All cheques payable to JC Wheel Dynamic Pte Ltd.
DBS Current ac No: 005-902569-3
Goods sold are not returnable. Interest Rate of 1.5% per month will be imposed on OverDue Accounts(s)

Paynow : 201130325E

RECEIVED BY

JC WHEEL DYNAMIC PTE LTD

Customer's Signature & Stamp

Authorised Signature

Invoice 2 shows the last repairs done on the Insured Vehicle 2 July 2021 at JC (arrowed) which included changing of the boost pipe. The DPF was also chemically washed (circled).

17. The Insured Vehicle was collected on 2 July 2021, a day before the incident occurred. After the repairs were done, Mr Darren mentioned that there were no further issues of similar nature with the Insured Vehicle. He also added 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.

18. Mr Yong mentioned that since driving the Insured Vehicle, he has not done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.

Incident Scene Photographs

19. We were able to obtain from Mr Darren, photos of the Insured Vehicle which were taken during 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 Yong. 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. See photos 13 – 15 below.

Photo 13 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 Yong which is the fire had started from the left bottom portion of the Insured Vehicle (arrowed).

Photo 14 shows the SCDF having just put out the fire on the Insured Vehicle (arrowed).

Photo 15 shows the Insured Vehicle post- incident being prepped to be towed to Goldbell.

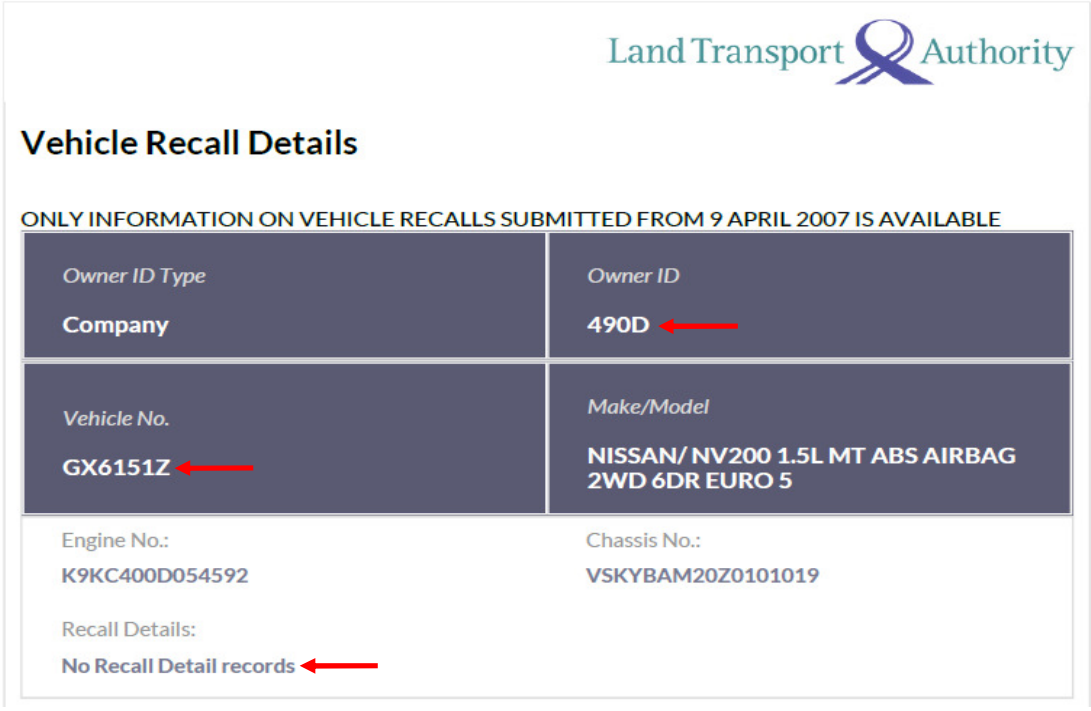
20. Based on the vehicle service record invoices provided, we are of the opinion that it is unlikely that the fire could have been caused by poor maintenance of the Insured Vehicle.

21. 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 Yong had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle when he was driving on that day. Moreover, an overheated engine would have caused the Insured Vehicle to stall. However in this case, Mr Yong was the one who noticed smoke emitting from the front bonnet 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.

22. The possibility of the fire being due to external factors (foreign material(s) stuck on hot surfaces, arson and sabotage amongst others) would also seem unlikely given that our examination of the available incident scene photographs did not reveal any unusual material(s)/object(s) found on the ground where the Insured Vehicle was positioned. The location of where the Insured Vehicle was positioned was also observed to be not at a secluded location.

23. The possibility of the fire being due to electrical in nature would then seem more likely given that engine overheating and external factors would both seem unlikely. The fire being due to electrical 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 8 above.

24. 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.



Land Transport Authority

Vehicle Recall Details

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

Owner ID Type **Company**	*Owner ID* **490D**
Vehicle No. **GX6151Z**	*Make/Model* **NISSAN/ NV200 1.5L MT ABS AIRBAG 2WD 6DR EURO 5**
Engine No.: K9KC400D054592	Chassis No.: VSKYBAM20Z0101019
Recall Details: No Recall Detail records	

Conclusion

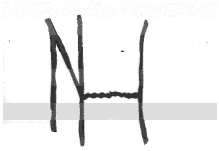
25. Having investigated and technically analysed the damages to the Insured Vehicle, we are of the view that the cause of fire to the Insured Vehicle was of electrical in nature. For this particular case, the fire had originated along the wirings inside the engine compartment, leading from the ECM. The wirings were original factory wirings of the Insured Vehicle.

26. 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.

27. 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.

28. 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.

29. 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.



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