

Your Ref: 321146
Our Ref : CS4/MSG23006885/N

24 July 2023

M/s MSIG Insurance (Singapore) Pte. Ltd.

4 Shenton Way #21-01
SGX Centre 2
Singapore 068807
(Motor Claims Department)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE GBJ 4281C ON 4 JULY 2023

1. We refer to your letter dated 7 July 2023 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GBJ 4281C (herein referred to as “**Insured Vehicle**”) are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 10 July 2023 at the premises of Kan Fook Sing Motor Workshop (herein referred to as “**KFS**”) located at Block 8 Defu South Street 1, Defu Industrial City, #04-29, Singapore 533758.

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

Vehicle Registration No.	: GBJ 4281C
Make / Model	: MITSUBISHI CANTER FEA01BR2SDEK (CBU)
Chassis No	: FEA01BA30135
Year of Registration	: April 2019
Mileage	: N.A (wiring affected)

5. The exterior body of the Insured Vehicle had not sustained any visible fire damage with the exception of the frontal portion. The interior compartment of the Insured Vehicle was observed to be severely affected by the fire.
6. The fire had resulted in the components in the engine compartment of the Insured Vehicle to be burnt. Most of the components inside the engine compartment were found to be severely burnt and/or melted as a result of the fire. See photos 1 – 5 below.



Photo 1 shows the rear portion of the Insured Vehicle at the time of our inspection. The damage to the Insured Vehicle was confined to its frontal portion. The exterior body of the Insured Vehicle was relatively unaffected by the incident except for the frontal portion.



Photo 2 shows the frontal portion of the Insured Vehicle at the time of our inspection. The damage to the Insured Vehicle was confined to its frontal portion. The exterior body of the Insured Vehicle was relatively unaffected by the incident except for the frontal portion.



Photo 3 shows the right frontal portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle was relatively unaffected by the incident except for the frontal portion.



Photo 4 shows the interior compartment the Insured Vehicle at the time of our inspection. The interior compartment of the Insured Vehicle was severely affected by the fire.



Photo 5 shows the engine compartment of the Insured Vehicle which is situated beneath the cab at the time of our inspection. The engine compartment of the Insured Vehicle was severely affected by the fire. Most of the components inside the engine compartment were found to be severely burnt and/or melted as a result of the fire.

7. 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

8. 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 on the rear right portion of the cab as well as the rust that had developed on the underside of the cab of the Insured Vehicle.
9. 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 underside of the cab of the Insured Vehicle is an indication that the engine compartment had sustained exposure to prolonged high heat intensity. See photos 6 & 7 below.



Photo 6 shows the whitish burn marks that were found on the rear right portion of the cab of the Insured Vehicle (circled). Such whitish burn marks are a result of exposure to prolonged heat intensity.



Photo 7 shows the rust that had developed on the underside of the cab of the Insured Vehicle (arrowed) which is an indication that the fire to the Insured Vehicle had originated from the engine compartment. 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 cab to be exposed to natural environmental condition.

10. For this particular case, most of the components inside the engine compartment were found to be severely burnt and/or melted as a result of the fire. The severely burnt and/or melted components had jammed the cab tilt lever. Hence we were unable to lift the cab of the Insured Vehicle to have a closer examination of the engine compartment.
11. Therefore based on circumstances of the case where it was reported that the fire was seen from the underside of the right portion of the cab as well as upon closer examination of the right portion of the engine compartment, which was where the fire to the Insured Vehicle had likely started, we had found several stretches of wiring burnt internally to its bare copper state. Such condition normally indicates internal heating of copper wires which is a sign of an electrical short circuit occurring. 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 8 & 9 below.



Photo 8 shows the wirings around the right side of the engine compartment, which is in the immediate vicinity where the fire to the Insured Vehicle had likely started. The wirings (red arrows) were found to have been burnt internally to its bare copper state, suggesting occurrence of an electrical short circuit.

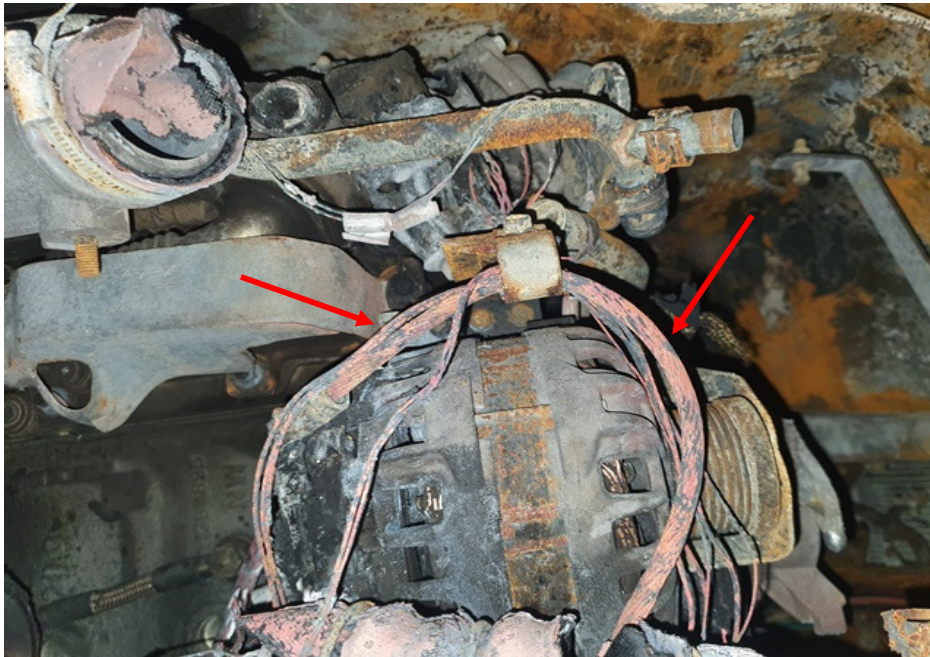


Photo 9 shows a closer view of the wirings (red arrows) which were found to have been burnt internally to its bare copper state, suggesting occurrence of an electrical short circuit.

12. From the Singapore Accident Statement which was made by Mr Tay Chye Seng (herein referred to as **"Mr Tay"**), we note that Mr Tay was first alerted to the fire by a passing motorcyclist who noticed flames emitting from underneath the driver cabin of the Insured Vehicle.
13. We managed to speak to Mr Tay where we were able to gather information pertaining to the incident.
14. The Insured Vehicle belongs to Min Ghee Auto Pte. Ltd. (herein referred to as **"Min Ghee"**). Mr Tay is an employee of Min Ghee and the main driver of the Insured Vehicle. According to Mr Tay, on the day of the incident, he was driving the Insured Vehicle along Bukit Timah Road. He had travelled from one of Min Ghee's offices located at Jalan Lembah Kallang and was headed home to Bukit Batok. A motorcyclist horned at Mr Tay informing him that the rear portion of the driver cabin was on fire. Mr Tay pulled over to the left side of the road and switched off the engine. He alighted and saw flames emitting from the right portion of the engine compartment of the Insured Vehicle.

15. He called 995. The police arrived first soon after followed by the SCDF. The police redirected traffic whilst firefighters attempted to put the fire. The fire was extinguished shortly after.
16. Mr Tay then informed his manager of the incident, after which towing arrangements were made. Mr Tay went home after the tow truck arrived. The Insured Vehicle was towed to KFS. Mr Tay made an insurance report at KFS on 6 July 2023 at 1647 hours.
17. Mr Tay mentioned that he had not experienced any mechanical or electrical/electronic problems with the Insured Vehicle till the day of the incident. He also mentioned that there were neither warning lights displayed nor was there an abnormal rise in temperature throughout the period the Insured Vehicle was driven.
18. With regard to the history of the Insured Vehicle, we were able to gather from Mr Tay, who is a business manager for Min Ghee that the Insured Vehicle was purchased new in 2019. To the best of his recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle.
19. Pertaining to the maintenance aspect, Mr Tay sends the Insured Vehicle for periodic servicing at H Tyre Pte. Ltd. located at 46/48 Bendemeer Road, Singapore 339931. The last servicing was approximately 2 months prior to the incident.
20. During the course of our investigations, we were also able to obtain from Mr Tan, a recent document relating to the servicing done to the Insured Vehicle. The latest servicing was done on 6 May 2023. The servicing package included changing of engine oil, oil filter and air filter. The engine coolant was also topped up. Refer to Invoice 1 below.

興輪胎私人有限公司
H TYRE PTE LTD

46/48 Bendemeer Road Singapore 339931
t: 6293 3636 | f: 6298 6868 | sales@htyre.com | www.htyre.com
UEN No. / GST Reg No. : 200205950C
TYRES | RIMS | REPAIR | AIRCON | ACCESSORIES | GROOMING

MIN GHEE AUTO PTE LTD
8 JALAN LEMBAH KALLANG #01-01 MIN GHEE BUILDING
Singapore 339564
Tel: 6298 3888

Tax Invoice

Inv No. : INV23050093
Invoice Date : 06 May 2023
Ref : WJ2305083
Terms : 30 Days
Veh. No. : GBJ4281C
Make : MITSUBISHI
Model : CANTER
FEA01BR2SDEK (CBU)
Mechanic : You Peng
Current Mileage : 178439
Next Svc Mileage : 188439
Next Svc Date : 06/11/2023

#	Description	Qty	UOM	U/P	Disc	Taxable Amt
1	LABOUR FOR SERVICING (Engine oil 7L, Oil filter, Maintenance check, Top up coolant)	1.00	UNIT	60.00	0.00	60.00
2	LABOUR FOR REPLACE AIR FILTER	1.00	UNIT	5.00	0.00	5.00

Goods sold are not refundable or exchanged.

For cheque payment, please cross and make payable to "H Tyre Pte Ltd".
For bank transfer payment, please make payment to the following account:
Bank Name: United Overseas Bank
Account No: 145-302-5565
Account Name: H Tyre Pte Ltd
Bank Code: 7375, Branch Code: 045
Swift Code: UOVBSGSG
Paynow with UEN: 200205950C

Please indicate the Invoice No. under Bill Reference when making payment by Bank Transfer/PayNow.
Late payment interest of 5% will be imposed if payment is not received by the due date.

I agree to the price as listed above and affirm that the goods are received in good condition.

Subtotal : S\$ 65.00
Total Tax : S\$ 5.20
Total : S\$ 70.20

For H Tyre Pte. Ltd.

(Customer's Signature and Company Stamp) (Authorised Signature)

Invoice 1 shows the latest servicing done on the Insured Vehicle at H Tyre Pte. Ltd. on 6 May 2023 (red arrows). The servicing package included changing of engine oil, oil filter and air filter. The engine coolant was also topped up (circled).

21. Mr Tay mentioned that after the servicing was done he had not experienced any mechanical or electrical problems with the Insured Vehicle till the day of the incident. Mr Tan also informed us that ever since the Insured Vehicle was purchased, Min Ghee has not done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.

Incident Scene Photographs

22. We were able to obtain from Mr Tay photographs of the Insured Vehicle at the incident location. The photographs were taken during and after the fire to the Insured Vehicle were extinguished. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Tay. 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 10 & 11 below.




Photo 10 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 Tay, which is the fire had started from the engine compartment (arrowed).



Photo 11 shows the Insured Vehicle 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 Tay, which is the SCDF had responded to the incident (arrowed).

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 Tay 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 Tay was alerted of the fire by a passing motorcyclist while he was driving the Insured Vehicle and switched off the engine after he stopped the Insured Vehicle.

24. 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 near 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.
25. 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 around the right portion of the engine compartment of the Insured Vehicle, which was earlier discussed in paragraph 11 above.
26. 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

<i>Owner ID Type</i> Company	<i>Owner ID</i> 613E
<i>Vehicle No.</i> GBJ4281C	<i>Make/Model</i> MITSUBISHI/ CANTER FEA01BR2SDEK (CBU)
<i>Engine No.:</i> 4P10D60816	<i>Chassis No.:</i> FEA01BA30135
<i>Recall Details:</i> 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 electrical in nature. For this particular case, the fire had originated along the wirings around the engine compartment. The wirings were original factory wirings inside the engine compartment 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. 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.
30. 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.
31. 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
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Technical Investigation & Reconstructionist (SAE-A)*

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