

Your Ref: YQ 3730X
Our Ref : CI/TP23003015/Pf2-1

4th April 2023

AOP LOGISTICS (S) PTE LTD
2 FISHERY PORT ROAD
#03-10 CACHE COLD CENTRE
SINGAPORE 619746
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE
INSURED VEHICLE YQ 3730X ON 3rd MARCH 2023**

1. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle YQ 3730X (herein referred to as “**Insured Vehicle**”) are set out below.

Inspection of the Insured Vehicle

2. The Insured Vehicle was physically inspected on 8th March 2023 at the premises of Goldbell Engineering Pte. Ltd (herein referred to as “**Goldbell**”) located at 8 Tuas Avenue 18 Level 3, Singapore 638892.
3. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: YQ 3730X
Make / Model	: MISTSUBISHI CANTER
Chassis No	: FEA01BA35133
Year of Registration	: 18 MAY 2021
Mileage	: 45,901KM

4. The Insured Vehicle was noted to have sustained fire damage that was confined to its exterior portion in between the rear fridge and the front cabin. The interior and the body parts of the Insured Vehicle was relatively unaffected by the fire.

5. The fire had resulted in the fridge front body panel, electrical wirings of the fridge control panel and the front cabin rear panel and air filter box of the Insured Vehicle to sustained heat and smoke damages. See photos 1 – 10 below.



Photo 1 shows the recorded mileage of the Insured Vehicle at the time of inspection 45,901km.



Photo 2 shows the front view of the Insured Vehicle at the time of our inspection. The front cabin portion of the Insured Vehicle was relatively unaffected by the fire.



Photo 3 shows the right view of the Insured Vehicle at the time of our inspection. The right portion of the Insured Vehicle was relatively unaffected by the fire.



Photo 4 shows the left view of the Insured Vehicle at the time of our inspection. The left portion of the Insured Vehicle was relatively unaffected by the fire.



Photo 5 shows the rear view of the Insured Vehicle at the time of our inspection. The rear portion of the Insured Vehicle was relatively unaffected by the fire.



Photo 6 shows the general view of the Insured Vehicle front cabin rear portion at the time of our inspection. The front cabin rear panel and air intake filter box of the Insured Vehicle had both sustained heat and smoke damages as a result of the fire (circled).



Photo 7 shows the close up view of the Insured Vehicle front cabin rear portion at the time of our inspection. The front cabin rear panel (red circle) and air intake filter box (yellow circle) of the Insured Vehicle had both sustained heat and smoke damages as a result of the fire.



Photo 8 shows the general view of the Insured Vehicle fridge front body panel at the time of our inspection. The fridge front body panel (red circle) and the electrical wirings of the fridge control panel (yellow circle) of the Insured Vehicle had both sustained heat and smoke damages as a result of the fire.



Photo 9 shows the close up view of the Insured Vehicle fridge front body panel at the time of our inspection. The fridge front body panel (circled) of the Insured Vehicle had sustained heat and smoke damages as a result of the fire.



Photo 10 shows the close up view of the Insured Vehicle fridge front body panel at the time of our inspection. The electrical wirings of the fridge control panel (circled) of the Insured Vehicle had sustained heat and smoke damages as a result of the fire.

Investigation and Technical Analysis

6. Based on the circumstances for this particular case, the fire appears to have originated from the exterior portion in between the rear fridge and the front cabin engine portion of the Insured Vehicle. This can be determined basing on the area where the extent of fire damage was most severe, the circumstances of the fires' origin at the material time of incident and also the burn marks and melting of materials that were found at the area.
7. Upon closer observations, the wirings of the fridge control panel located on the fridge front body panel were observed to sustain the most damage from the fire, we had notice that the wiring had sustained heat and smoke damages however, we did not observed any presence of greenish residue or any indications of internal heating of copper wires which are the signs of electrical short circuit occurring, This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle would not be due to electrical in nature. See photo 11 and 12 below.

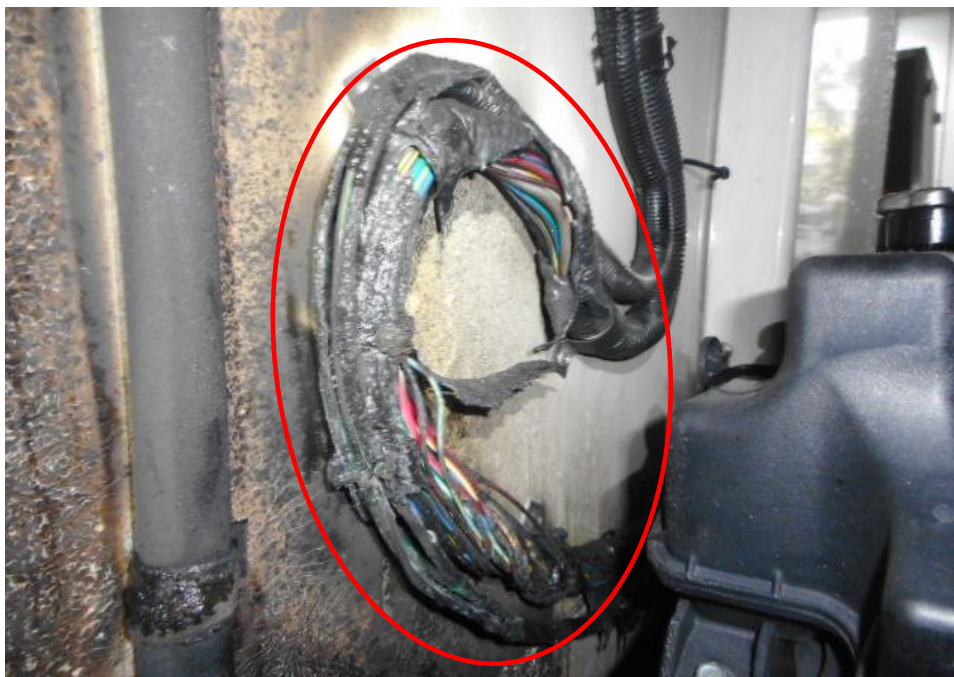


Photo 11 shows the general view of the fridge front body panel of the Insured Vehicle at the time of our inspection. We observed that the wiring of the fridge control panel had sustain heat & smoke damages (circled) however, there was no presence of greenish residue or any indications of internal heating of copper wires which are the signs of electrical short circuit occurring. This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle would not be due to electrical in nature.

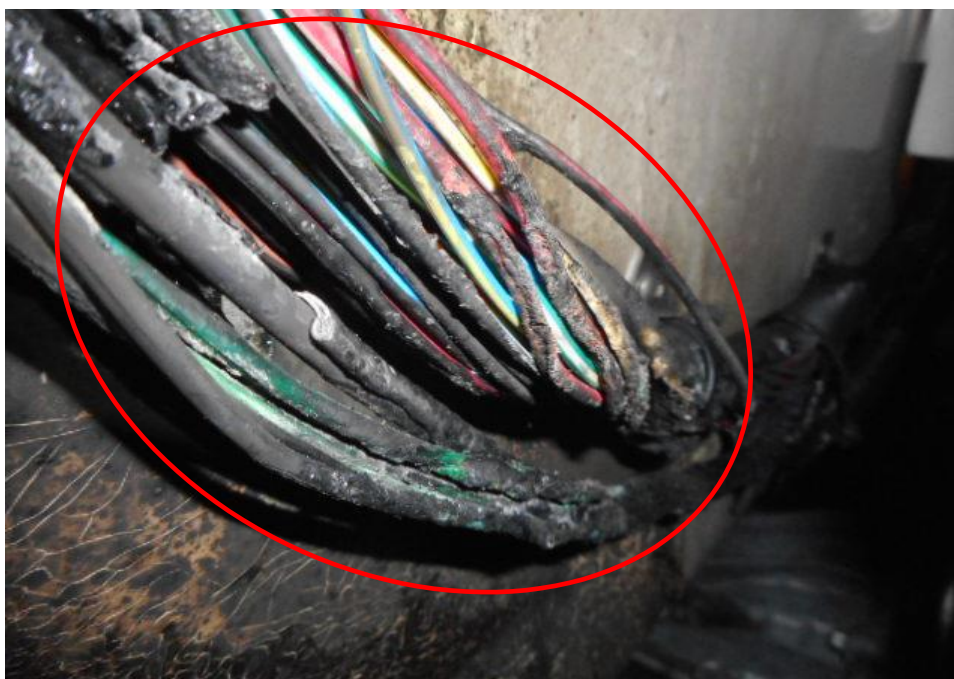


Photo 12 shows the close up view of the fridge front body panel of the Insured Vehicle at the time of our inspection. We observed that the wiring of the fridge control panel had sustain heat & smoke (circled) damages however, there was no presence of greenish residue or any indications of internal heating of copper wires which are the signs of electrical short circuit occurring. This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle would not be due to electrical in nature.

8. We also notice that the plastic protective cover wrapping the wirings of the fridge control panel located on the fridge front body panel were observed to have melted off and landed onto the engine exhaust downpipe which was located right below it.
9. Upon closer observations, we notice that the plastic protective cover wrapping the wirings of the fridge control panel that had melted and landed onto the engine exhaust downpipe had either been burned off or imbedded onto the engine exhaust downpipe and also onto the surfaces of the other components in the close vicinity due to the heat and fire. We are in view that this is where the fire had likely started from. See photos 13 and 14

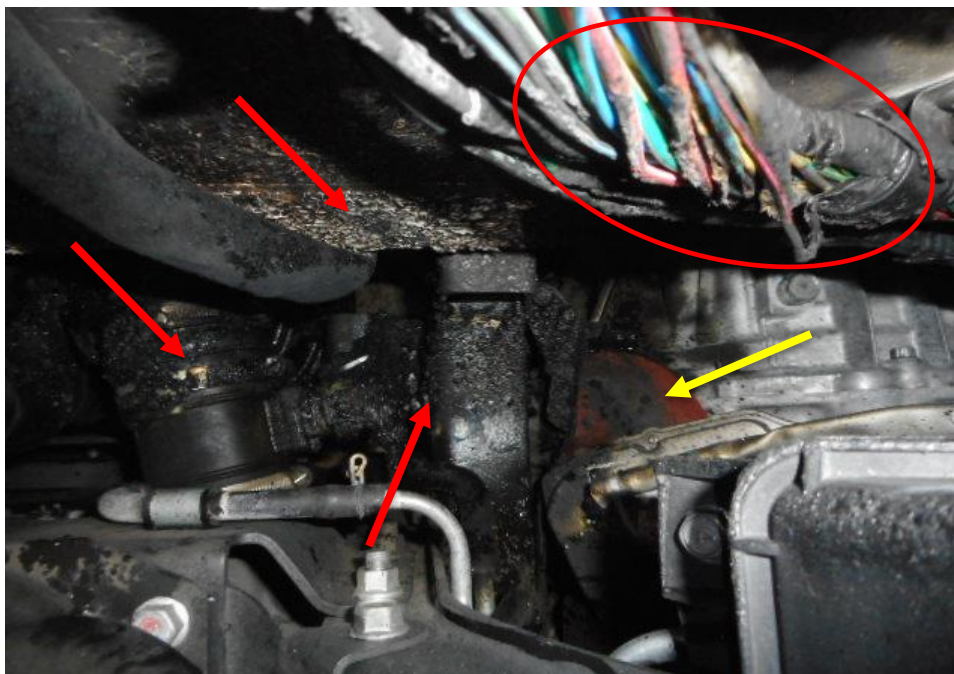


Photo 13 shows the close up view of where the plastic protective cover (circled) wrapping the wirings of the fridge control panel that had melted and landed onto the engine exhaust downpipe had either been burned off or imbedded onto the engine exhaust downpipe (yellow arrow) and also onto the surfaces of the other components (red arrow) in the close vicinity due to the heat and fire. We are in view that this is where the fire had likely started from.

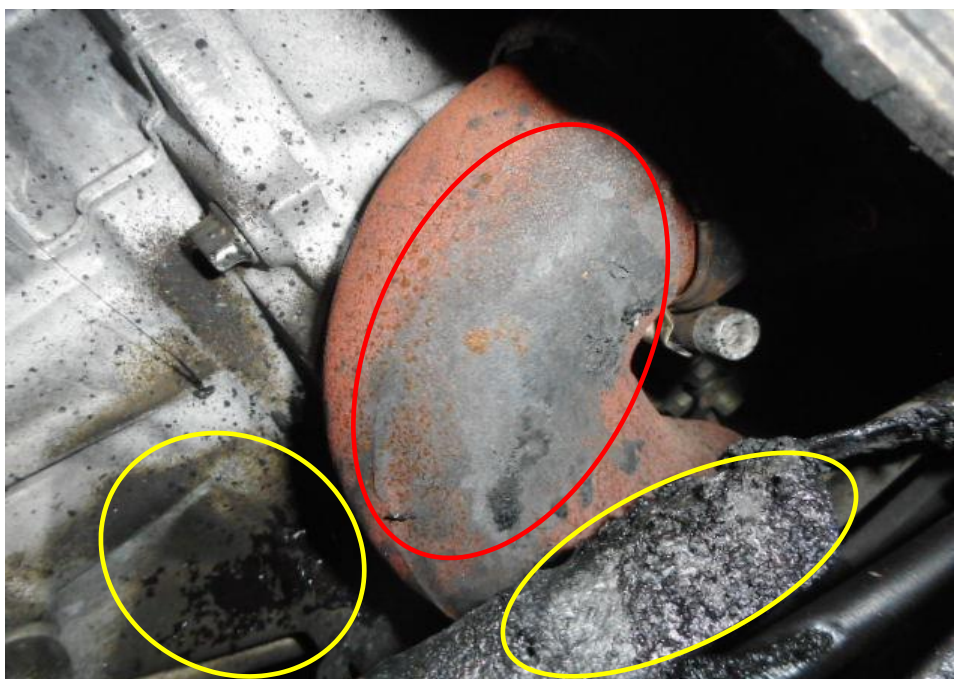


Photo 14 shows close up view of where the plastic protective cover wrapping the wirings of the fridge control panel that had melted and landed onto the engine exhaust downpipe had either been burned off or imbedded onto the engine exhaust downpipe (red circle) and also onto the surfaces of the other components (yellow circle) in the close vicinity due to the heat and fire. We are in view that this is where the fire had likely started from.

10. 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.
11. We managed to speak to the driver of the Insured Vehicle Mr Ong Teck Soon, Raymond on 22nd March 2023 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. From the Singapore Accident Statement, which was made by Mr Ong Teck Soon, Raymond (herein referred to as “**Raymond**”), we note that the fire to the Insured Vehicle had started at a time when the Insured Vehicle was parked stationary at the parking lot of his house carpark in between other vehicles. Raymond was first notice the fire when he was seating inside the parked Insured Vehicle at his house carpark and he suddenly saw smoke and flames emitting behind him from the rear view mirror of the Insured Vehicle.
13. According to Raymond, the Insured Vehicle belongs to his company and he works as a delivery driver. He mentioned that he drove the Insured Vehicle back home from work at Jurong fishery port which took about 45 minutes and there was no abnormalities during the drive home and even after the Insured Vehicle was parked.
14. Raymond informed us that the Insured Vehicle comes with the manufacture equipped Automatic Diesel Particulate Filter (DPF) regeneration function. When the Diesel Particulate Filter (DPF) system detects that there is a buildup of diesel soot in the Diesel Particulate Filter (DPF), and when the Insured Vehicle is parked stationary and the system will run automatically without driver’s input by raising the engine’s rpm above idle speeds to heat up the exhaust gas in the exhaust system to high temperatures to burn off the diesel soot that is stuck onto the Diesel Particulate filter of the exhaust system and out of the exhaust piping and turn off automatically once the system detects that the Diesel Particulate Filter (DPF) is clear and cleared of diesel soot.
15. Raymond informed us that after he parked the Insured Vehicle before turning off the engine the dashboard light for the Automatic Diesel Particulate Filter regeneration function (DPF) had lighted up and the system had started running. He mentioned that the whole process would take about 10 to 15 minutes depending on the amount of diesel soot that is stuck in the Diesel Particulate Filter (DPF).

16. Raymond sat in the Insured Vehicle and waited for the process to finish running. A few minutes into the running process and he looked through the rear view mirror and notice that right behind his driver seat, there was flames and smoke emitting. He subsequently shut off the engine and took a bottle of water inside the Insured Vehicle and tried to put out the fire. He informed us that he managed to put out the fire shortly and SCDF assistances was not called.
17. Raymond contacted his company and they arranged their company mechanic to take a look and then a tow truck and had the Insured Vehicle towed to the insurance authorized workshop at Goldbell Engineering Pte Ltd where Raymond proceeded down & made an accident report on the next business day.
18. Raymond 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, prior to the fire.
19. With regards to the history of the Insured Vehicle, we were able to gather from Raymond's company that the Insured Vehicle was purchased brand new and the Insured Vehicle belongs to their company. Raymond informed us that the Insured vehicle is a sharing vehicle of the company since the day the Insured Vehicle bought.
20. Pertaining to the maintenance aspect, Raymond's company informed that there was no major overhaul done as the Insured Vehicle is new and they have provided us with the periodic servicing record that shows that the Insured Vehicle was well maintained and the last servicing was done 5000km/4 months ago prior to the fire incident.



Industrial Vehicles, Financial Services,
41,000 Served. And Counting.

Maintenance Schedule Control Chart







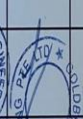
CANTER/ROSA

Vehicle No : Y03730X

Date of Purchased : _____

Customer Name : AOP LOGISTICS (S) PTE LTD

Contract Ref : _____

Service Interval	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th
	1,000km	5,000km	10,000km	20,000km	30,000km	40,000km	50,000km	60,000km	70,000km	80,000km	90,000km	100,000km
Date of Service	23.6.21	11.10.21	22.10.21	16.02.22	14.07.22	30.11.22						
Mileage	2200	5300	10300	20738	31302	40513						
Driver Name												
Driver Signature												
Workshop Stamp & CSA Signature												

Confirmed By _____
Service Department

Service Hotline : 6864 0698
24 Hrs Breakdown : 9128 5667
Accident Claim : 9755 7336

Note:

- 1) All Euro 6 trucks strictly recommended to be serviced at Goldbell Service Centre
- 2) Warranty Period: 3 years or 100,000km whichever come first
- 3) Service Interval : After 1,000km & 5,000km every 3 months or 10,000km interval (wecf)

Tuas Service Centre

8 Tuas Avenue 18 Singapore 638892

Changi Service Centre

48 Changi South Street 1 Singapore 486130

IMPORTANT:

The ORIGINAL Card must be safe keep by the driver.
It must be presented to visited workshop without fail upon each servicing/repairs.

Servicing record shows the periodical servicing record of the Insured Vehicle. It shows that the Insured Vehicle was well maintained and the last servicing was done about 5000km/4 months ago prior to the fire incident.

21. Our checks with both local and international bodies and associations had also revealed that at the time of writing this report, there is no manufacturer recall of similar make and model vehicle as the Insured Vehicle that may possibly be related to fire being originated from the engine or its exhaust downpipe of the Insured Vehicle. See search result from LTA below.



Vehicle Recall Details

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

Owner ID Type Company	Owner ID 004D
Vehicle No. YQ3730X ←	Make/Model MITSUBISHI/ CANTER FEA01BR1SDEP (CBU)
Engine No.: 4P10E62883	Chassis No.: FEA01BA35133 ←
Recall Details: No Recall Detail records ←	

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Recall details. Shows the vehicle recall results retrieved from LTA's website. There was no recall on the Insured Vehicle at the time to the fire incident.

22. 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 Raymond 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, the Insured Vehicle engine was able to be started and able to be driven at the material time of inspection.
23. The possibility of the fire being due to electrical in nature would seem unlikely. As during our inspection on the wirings of the fridge control panel, we did not observed any presence of greenish residue or any indications of internal heating of copper wires which are the signs of electrical short circuit occurring, This physical evidence would then appear to suggest that the cause of fire to the Insured Vehicle would not be due to electrical in nature which was earlier discussed in paragraph 8 above.
24. The possibility of the fire being due to external factors (foreign material(s) stuck on hot surfaces) would then seem likely as the fire occurred as Raymond informed that prior to the fire incident, the Insured Vehicle was parked at the carpark lot in between vehicle and was running its Automatic Diesel Particulate Filter (DPF) regeneration function.
25. From our understanding, during this process the engine rpm would rise above normal engine idling speeds and that would cause a build up from exhaust temperature which would be used to burn off the diesel soot that is stuck in the Diesel Particulate Filter (DPF), however this would also cause the engine exhaust downpipe to be heated up to a temperature of 600 degrees and above. At this temperature without adequate air ventilation which in this particular case the front cabin and the rear fridge was placed very close to each other and also the Insured Vehicle was parked in between vehicles in which all these factor had likely block the proper ventilation of extreme heat emitting out from the exhaust downpipe and as the heat rises, it melts the plastic protective cover which was placed directly above the path of the rising heat causing it to fall off and land onto the exhaust downpipe that was emitting the extreme heat.
26. Due to plastic material being a combustible material, when it fell off and landed onto the hot exhaust downpipe it started to burn got imbedded onto the exhaust downpipe in the process producing flames which had caused the smoke and heat resulting to the damages on the fridge front panel, wirings of the fridge control panel and the front cabin rear panel as well as its air filter box which was all located right above and he mentioned flames of what Raymond had seen when he first spotted the fire was due to it.

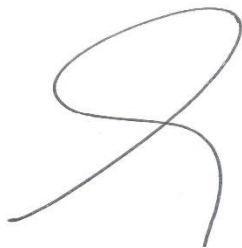
Conclusion

27. Having investigated and technically analyzed 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 extreme heat emitting out from the exhaust downpipe during its Automatic Diesel Particulate Filter (DPF) regeneration process and due to inadequate air ventilation causing the electrical wiring plastic protective cover of the fridge control panel above the exhaust downpipe to melt and fall down onto the hot surface of the exhaust downpipe and self-ignite causing the smoke and heat damages to the Insured Vehicle, resulting to the fire incident.
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 was 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 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.



Sherwin Beh

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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