LKK Auto Consultants Pte Ltd

Company Registration No. 199607198R

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Your Ref: AN3163908
Our Ref : CS/AXA18008992/Z

04th June 2018

M/s AXA Insurance (Singapore) Pte Ltd
8 Shenton Way #24-01, AXA Tower,
Singapore 068811
(Motor Claims Department)

TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE FBE 3832X ON 05th May 2018

1. We refer to your letter dated 21st May 2018 and the instructions therein.

2. Our analysis, comments and opinions with respect to the cause of fire to the Motor Vehicle FBE 3832X (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Motor Vehicle

3. The Insured Vehicle was physically inspected on 21st May 2018 at the premises of Speedway Motors Pte Ltd (herein referred to as "**Speedway**"), 36 Toh Guan Road East, #01-32, Enterprise Hub, Singapore 608580.

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

Vehicle Registration No.	: FBE 3832X
Make / Model	: Yamaha T135-135CC
Chassis No	: 5YP302269
Year of Registration	: 2010 (March)
Mileage	: N.A. (wiring affected)

5. The Insured Vehicle was noted to have sustained fire damages that severely effected on the entire parts of the Insured Vehicle. The fire damages were observed on its engine compartment, front portion, left portion, right portion & rear portion. Rust had accumulated all over the Insured Vehicle as a result of exposure to environmental condition for a period of time. See photos 1 to 4 below.

Photo 1 shows the left portion view of the Insured Vehicle at the time of our inspection. The Insured Vehicle was noted to have sustained fire damages that severely effected on the entire parts of the Insured Vehicle.

Photo 2 shows the right portion view of the Insured Vehicle at the time of our inspection. The Insured Vehicle was noted to have sustained fire damages that severely effected on the entire parts of the Insured Vehicle.

Photo 3 shows the rear left side of the Insured Vehicle at the time of our inspection. The Insured Vehicle was noted to have sustained fire damages that severely effected on the entire parts of the Insured Vehicle.

Photo 4 shows the after-market exhaust pipe. It was believe from manufacture called 'LeoVince'. It was said to be an approved LTA after-market exhaust pipe.

6. Rust would normally start to develop around 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 Insured Vehicle is an indication that it had sustained exposure to prolonged high heat intensity. See photo 5 below.

Photo 5 shows 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 Insured Vehicle is an indication that it had sustained exposure to prolonged high heat intensity.

7. At the time of inspection, we did not observe 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 except for the exhaust pipe that was observed not part of the factory fitted component for the Insured Vehicle.

Investigation and Technical Analysis

8. Upon closer examination of the area around the body structure of the engine compartment, which was in the immediate vicinity of where the fire to the Insured Vehicle had likely started, we had found several stretches of wiring burnt internally to its bare copper state. The wirings were likely to be the original engine wire harness. Such condition normally indicate internal heating of copper wires which is a sign of an electrical short circuit occurring. A greenish residual on the wires also indicated the focal point of where the area fire had ignited. This would then appear to suggest that the cause of fire to the Insured Vehicle could have possibly been due to electrical in nature. See photo 6 & 7 below.

Photo 6 shows the front portion of the Insured Vehicle at the time of our inspection. Wirings were noted to have greenish residual likely due to an electrical short circuit.

Photo 7 shows the view from rear portion of the Insured Vehicle at the time of our inspection. Stretches of wires were noted to have greenish residual likely due to an electrical short circuit.

9. From the Singapore Police Report No. J/20180507/2169 which was made by Mr Rohaizad Bin Ahmad Juffri (herein referred to as **"Mr Izad"**), on 05th May 2018 at about 1915hrs he was walking back to his motorcycle bearing the registration number FBE 3832X after completed a food delivery at Mount Sinai Avenue. He had parked his motorcycle at the road side of Mount Sinai Avenue opposite Lamp Post 13. When he first tried to crank start the motorcycle, he didn't manage to get it to start. He then tried a few more times, suddenly there's smoke emit from under the seat. He saw a small fire from under the seat, not knowing what causes the fire to ignite since this is the first time such incident happened to him. He then summoned for SCDF assistance. SPF & SCDF came soon after.

10. We managed to arranged for a face to face interview with Mr Izad on 23rd May 2018 at Starbuck Cafe in the premise of Ng Teng Fong Hospital where we were able to gather further information regarding the accident and also information pertaining to the history of the Insured Vehicle.

11. The Insured Vehicle was purchased pre-owned from Speedway on 06th April 2018. It was first registered on 26th March 2010. Mr Izad will drive the Insured Vehicle most of the time mainly work purposes.

12. Mr Izad is currently working as a food delivery rider. He had just started working since the purchased of the Insured Vehicle. His will travel to about 10 places during his course of work on daily basis. Depending on his work load, at times he even visited more than 10 places in SIngapore.

13. Prior to the fire incident on the same day in the morning. At about 11.20am, Mr Izad left home to start work. He then heads off from his house at Jurong West Street 25 to 'Jems' shopping mall to clock in to start work. Mr Izad got an order to go to Mount Sinai Avenue and that was after working for about 8 hours.

14. Everything was intact before leaving the Insured Vehicle, only after he had done with the delivery at Mount Sinai Avenue when he came back to his parked Insured Vehicle, he could not start the Insured Vehicle. He tried kick starting for a few times but to no avail. He keeps on trying kick starting the engine until he notice smoke emit from under the Insured Vehicle seat followed by fire. It grew bigger eventually engulf with fire. SCDF & SPF were summoned for assistance.

15. SCDF & SPF personnel arrived & took control of the situation. After the fire was extinguished, Mr Izad was interviewed by Investigating Officers (herein referred to as **"I.O"**) from SCDF & SPF with regards to the fire incident. Mr Izad arranged towing of the Insured Vehicle to speedway workshop which is located at 36 Toh Guan Road East, #01-32, Enterprise Hub, Singapore 608581.

16. Mr Izad mentioned that he had experienced knocking sound to the engine while riding the Insured Vehicle after 2 weeks of purchased. He returned to Speedway to complaint about the knocking issue. The issue was resolved by Speedway after replacing a few parts such as cam, valve, bearing & inclusive of preventive maintenance servicing on 26th April 2018.

17. Further in our investigation, we found that the exhaust pipe was not the original factory fitted. Our research found that it was an after-market exhaust pipe known as 'LeoVince'. We were informed by Mr Izad that the exhaust pipe was already installed upon purchased of the Insured Vehicle. When asked, Speedway acknowledge of the after-market exhaust pipe was installed by them. They had issued a certificate for the exhaust pipe & it was said to be in-compliance with LTA regulations. However, the certificate was burnt together with the Insured Vehicle. No duplicate copy was kept by Mr Izad or Speedway to proof the legality of the exhaust pipe. See photo 8 & 9 below for similar model comparison. See photo 8 & 9 below.

Photo 8 shows the after-market exhaust pipe. It was believe from manufacturer called 'LeoVince'. It was said to be an approved LTA after-market exhaust pipe.

Photo 9 shows a similar after-market exhaust pipe installed on a similar model of motorcycle from a manufacturer called 'LeoVince'. It was said to be an approved LTA after-market exhaust pipe.

18. With regards to the history and maintenance records of the Insured Vehicle, since it was newly purchased (30 days from purchased date) no servicing was scheduled for the Insured Vehicle as yet. However, we had retrieved a copy of the receipt for repairing & servicing done by Speedway on 26th April 2018 (for the complaint of knocking sound). Refer to Invoice 1 below.

19. Mr Izad had also informed us that he had purchased a bottle of engine fluid from a Malaysia workshop for topping-up purposes. It was due to the insufficient engine fluid found inside the Insured Vehicle engine pan. He was able to provide us with a document relating to this purchased. Our review of this document revealed that he had purchased 01 bottle of 4T 5100 engine fluid on 21st April 2018 from a Malaysia workshop which is located at No. 12L, Jalan Tun Abdul Razak (Susur 4) 80200 Johor Bahru . Refer to invoice 2 below.

SPEEDWAY MOTOR PTE LTD

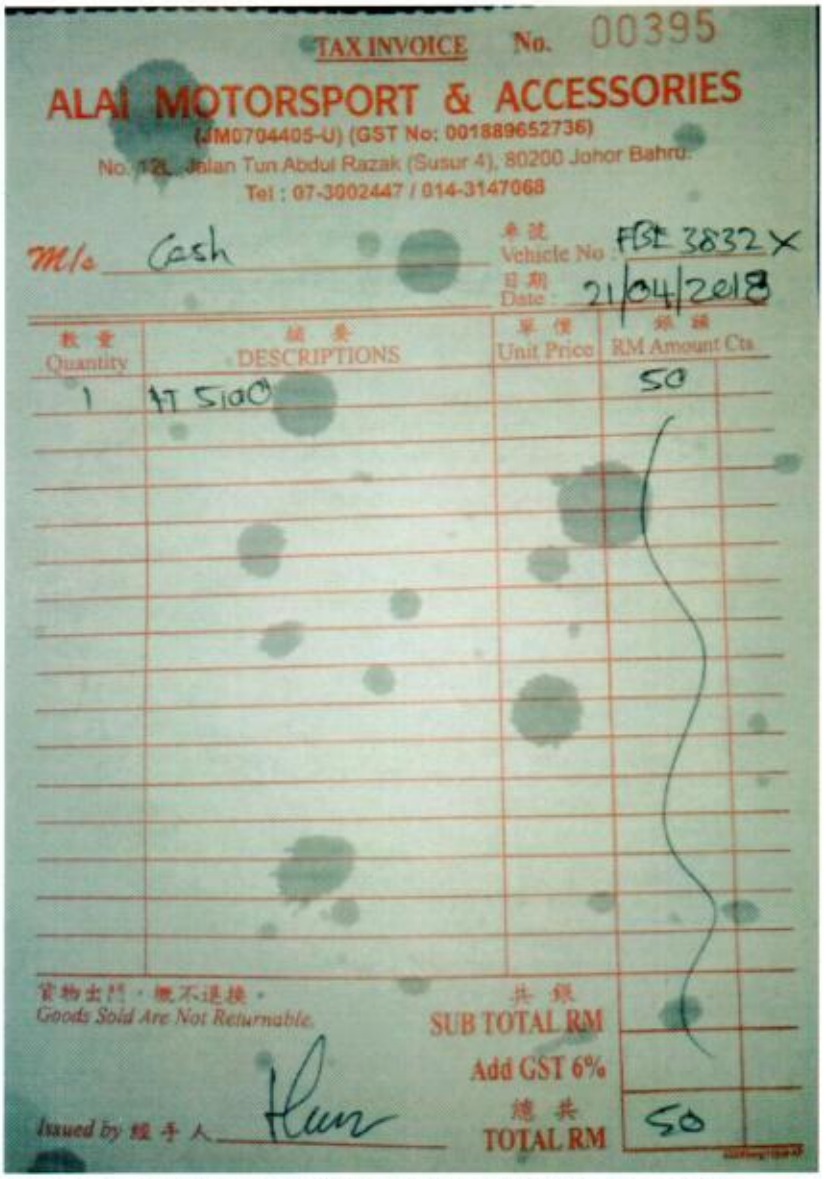
OFFICIAL RECEIPT

RC2018-13402

TRIPLE

DESCRIPTION | AMOUNT

Invoice 1 show the repair & servicing record done at Speedway Motor workshop on 26th April 2018.



TAX INVOICE No. 00395

ALAI MOTORSPORT & ACCESSORIES

(JM0704405-U) (GST No: 001889652736)

No. 12L, Jalan Tun Abdul Razak (Susur 4), 80200 Johor Bahru.

Tel : 07-3002447 / 014-3147068

M/s Cash

Vehicle No : FGE 3832X

Date : 21/04/2018

Quantity	DESCRIPTIONS	Unit Price	RM Amount Cts
1	4T 5100		50

Goods Sold Are Not Returnable.

SUB TOTAL RM

Add GST 6%

TOTAL RM 50

Issued by

Invoice 2 show the engine fluid was purchased at Alai Motorsport & Accessories on 21st April 2018.

Incident Site Visit

20. We visited the incident location on 22nd May 2018 taking the police report made by Mr Izad and the information that we had gathered during our conversation with him as references.

21. The incident had occurred at Mount Sinai Avenue opposite Lamp post 13. When driving along Mount Sinai Avenue, Lamp post 13 will be on the left side. The fire incident location was observed to be on the opposite site of Lamp post 13. The Insured Vehicle spot was noted to be on a yellow stripe road hump.

22. At the time of our visit, we were able to clearly see burnt marks/ burned residual remains on the street ground. A burnt portion of the nearby tree reveals that there's evidence of a fire incident did took place at the said location. See photo 10 to 12 below.

Photo 10 shows lamp post 13 & Mount Sinai Road sign where the fire incident took place.

Photo 11 shows the fire incident happened on the opposite site of lamp post 13 of Mount Sinai Road.

Photo 12 shows the burnt portion of the nearby tree indicates that fire incident did took place at the said location.

Fire Incident Site Photograph

23. We were able to gather some photographs taken by Mr Izad at the incident scene before the Insured Vehicle was towed away. We note that the location of the incident was located at Mount Sinai Avenue near Lamp post 13.

24. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Izad. 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 of the side of the road where the Insured Vehicle was positioned. See photos 13 -14 below.

Photo 13 shows the burnt Insured Vehicle after the fire was extinguished by SCDF officers.

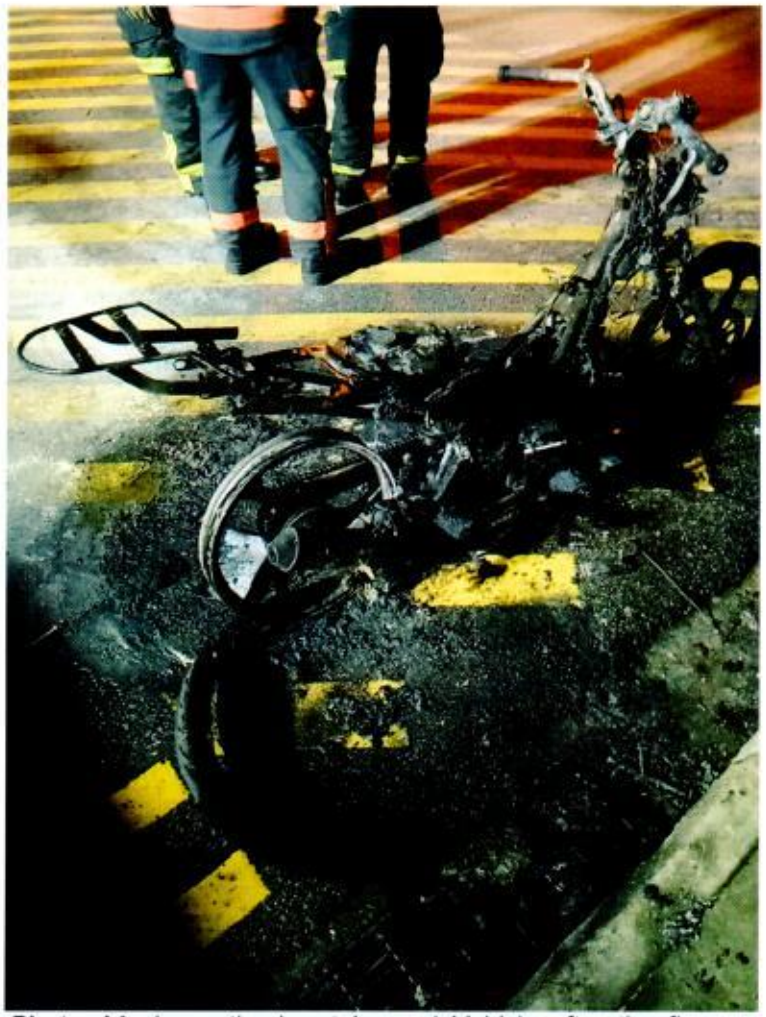


Photo 14 shows the burnt Insured Vehicle after the fire was extinguished by SCDF officers.

25. For this case, the evidence and information gathered such as vehicle service invoice appears to suggest that the fire to the Insured Vehicle does not occurred due to lack of maintenance service/poor maintenance. In this aspect, a few possible causes of fire could have existed. These include electrical nature of the wiring, an overheated engine, the possibility of the fire being due to external factors (foreign material(s) stuck on hot surfaces, improper modifications, arson and sabotage and leakage of fluid onto hot surfaces amongst others.

26. Given the circumstances of incident as reported, the possibility of the cause of fire to the Insured Vehicle being due to engine overheating would seem unlikely as the fire started while its engine was not switched on. (Parked)

27. 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 as the fire occurred at an open space environment without near to any foreign materials observed on the ground where it was parked.

28. Basing on the result of our interview session with Mr Izad on 23rd May 2018. Information gathered to the best of his recollection. The fire was seen emitted out from under the seat compartment at time of the incident. Therefore there are possibilities that the fire erupted from under the seat compartment area which is near to the battery compartment. It was believed that there are possibilities 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 sparked from the short circuit wires might cause ignition to start a fire in general. In this case, several cranking had possibly caused an overload of current to the electrical system of the insured Vehicle.

29. Fire might started from multiple engine cranking (kick start) by the Insured Vehicle owner prior the fire incident. Engine cranking (kick start) is a process that rotates a shaft attached to it. Which in turn have a gear in it. This gear in turn rotates the crankshaft & produces an initial momentum which in turn reciprocates the piston in the cylinder. Meanwhile spark is produced & the fuel in cylinder burn, giving life to the engine. This process happens internally inside an engine. However, several cranking might possibly cause an overload of current to the electrical system of the insured Vehicle that can caused fire to ignite.

30. Further researched on the issue that the Insured Vehicle's owner couldn't crank (kick start) to start the engine prior to the incident. It was believe to associate with the malfunction of a component called 'CDI – Capacitor Discharged Ignition' where a Capacitor discharge ignition (CDI) or thyristor ignition is a type of automotive electronic ignition system which is widely used in outboard motors, motorcycles, lawn mowers, chainsaws, small engines, turbine-powered aircraft, and some cars. It was originally developed to overcome the long charging times associated with high inductance coils used in inductive discharge ignition (IDI) systems, making the ignition system more suitable for high engine speeds (for small engines, racing engines and rotary engines). The capacitive-discharge ignition uses capacitor discharge current to the coil to fire the spark plugs. A malfunction CDI will cause the engine unable to be started.

31. 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.

> Back to OneMotoring

Enquiry on Vehicle Recall - Vehicle Specific

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

Vehicle Owner Particulars

Owner ID Type:	Singapore NRIC
Owner ID:	4574A

Vehicle Details

Vehicle Registration number:	FBE3832X
Make:	YAMAHA
Vehicle Model:	T135
Engine No.:	5YP302269
Chassis No.:	5YP302269

Recall Details

No Recall Detail records

OK

Conclusion

32. Having investigated and technically analysed the damages of burnt nature to the Insured Vehicle, also through our face to face interview with Mr Izad. We are of the view that the fire had originated from under the rider's seat compartment area of the Insured Vehicle. The cause of fire to the Insured Vehicle was likely due to of electrical short circuit around the battery compartment in general. In this case, several cranking had possibly caused an overload of current to the electrical system of the insured Vehicle.

33. 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 basing on the Insured Vehicle was newly purchased and the preventive maintenance servicing was not yet in schedule.

34. 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 except for the aftermarket exhaust pipe. The certificate was placed under the Insured Vehicle's seat & was burnt together with it.

35. 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.

36. 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.

Rohaizal A. Rahim
Technical Investigator

Ang Bryan Tani
AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA
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Technical Investigation & Reconstructionist (SAE-A)