

Your Ref: DMCPHQ17-004318  
Our Ref : CS/EQI18001369/N

31 January 2018

**M/s EQ Insurance Company Ltd.**

5 Maxwell Road #17-00 Tower Block  
MND Complex  
Singapore 069110  
(Motor Claims Department)

**TECHNICAL INVESTIGATION REPORT OF FIRE INCIDENT INVOLVING THE INSURED VEHICLE GBB 504D ON 13 JANUARY 2018**

1. We refer to your letter dated 23 January 2018 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle GBB 504D (herein referred to as “**Insured Vehicle**”) are set out below.

**Inspection of the Insured Vehicle**

3. The Insured Vehicle was physically inspected on 29 January 2018 at the premises of Ah Lim Motor Co. (herein referred to as “**Ah Lim**”) located at 10 Ang Mo Kio Industrial Park 2A, Ang Mo Kio Autopoint, #01-09, Singapore 568047.

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

Vehicle Registration No.	: GBB 504D
Make / Model	: Nissan Urvan Panel LWB 3.0 5DR 5MT AIRBAG 2WD
Chassis No	: JN1MG4E25Z0781477
Year of Registration	: June 2008
Mileage	: N.A (wiring affected)

5. The exterior body of the Insured Vehicle had not sustained any visible fire damage. However the engine compartment of the Insured Vehicle was observed to be burnt and/or melted.
6. The fire had resulted in the components in the engine compartment of the Insured Vehicle to be burnt. Affected parts had included the battery and engine block, amongst others. See photos 1 – 4 below.



**Photo 1** shows the general view of the front portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle was relatively unaffected by the fire.



**Photo 2** shows the general view of the right portion of the Insured Vehicle at the time of our inspection. The exterior body of the Insured Vehicle was relatively unaffected by the fire.



**Photo 3** shows a general view of the engine compartment of the Insured Vehicle which was covered in fire extinguisher residue at the time of our inspection. Most of its engine components were found to have been affected as a result of the fire.



**Photo 4** shows the interior compartment of the Insured Vehicle, which was observed to be relatively unaffected by the fire.

7. At the time of physical inspection of the Insured Vehicle, we had found several additionally fitted electronic and/or electrical component(s) on the Insured Vehicle. These included a vehicle speed limiter, 2 LED light strips, 2 aftermarket speakers and a fuse breaker. All these fitted components were not the standard type for the Insured Vehicle. See photos 5 - 12 below.



**Photo 5** shows the 1st LED light strip fitted above the speedometer (arrowed) and the vehicle speed limiter device fitted beside the steering wheel of the Insured Vehicle (circled) upon our inspection.



**Photo 6** shows a closer view of the speed limiter device fitted beside the steering wheel of the Insured Vehicle (circled) upon our inspection.



**Photo 7** shows the 2nd LED light strip fitted above the foot pedals of the Insured Vehicle (circled) upon our inspection.



**Photo 8** shows the 1st aftermarket speaker fitted at the front passenger door panel. The brand of the speaker was 'LANZAR' (circled).



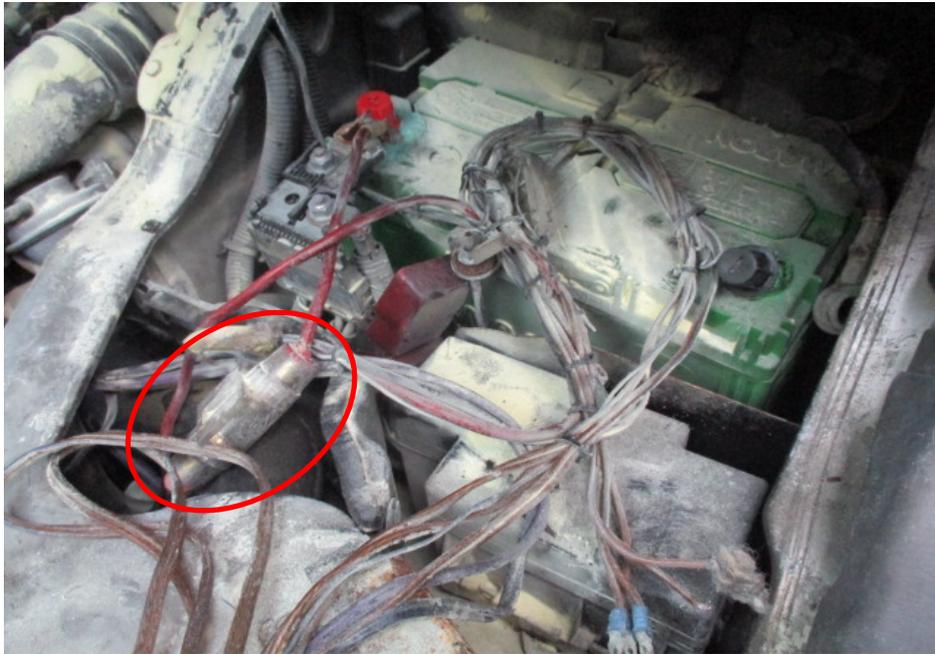
**Photo 9** shows a close up view of the aftermarket speaker fitted at the front passenger door panel. The brand of the speaker was 'LANZAR' (circled).



**Photo 10** shows the 2nd aftermarket speaker fitted at the driver door panel. The brand of the speaker was 'LANZAR' (circled).



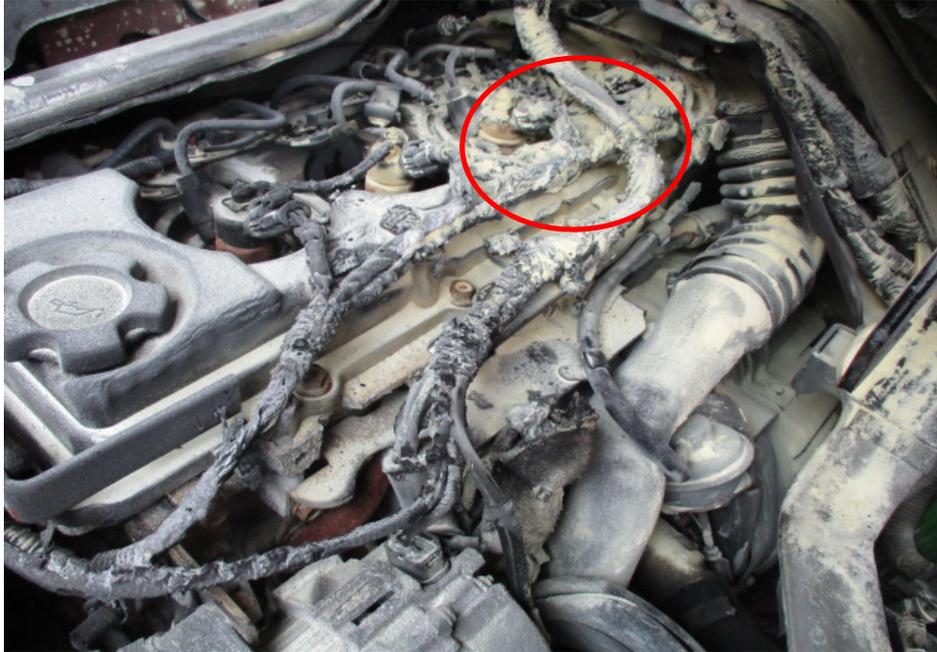
**Photo 11** shows a close up view of the 2nd aftermarket speaker fitted at the driver door panel. The brand of the speaker was 'LANZAR' (circled).



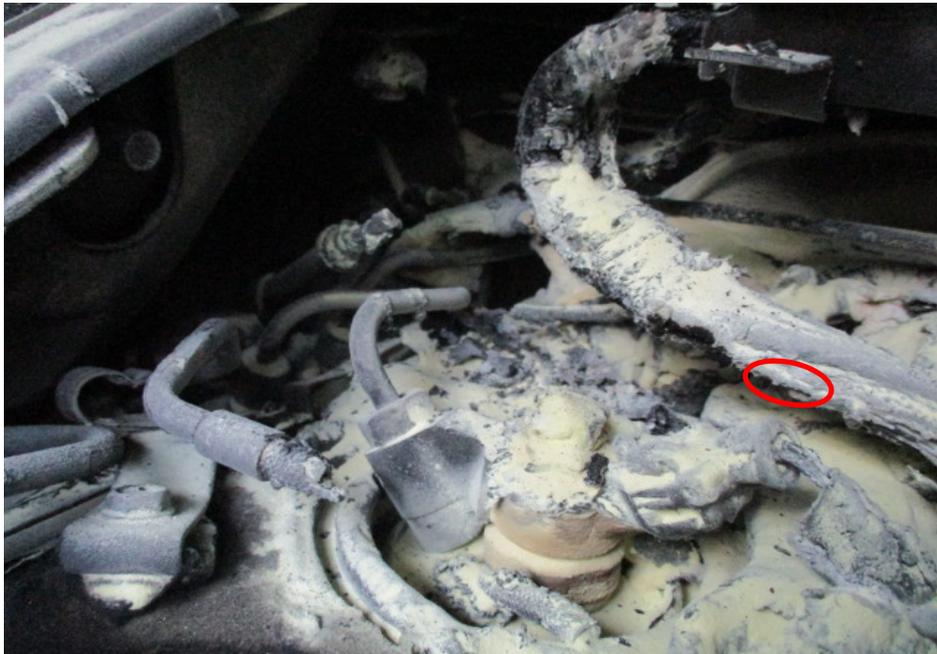
**Photo 12** shows the fuse breaker (circled) that was connected to the battery of the Insured Vehicle at the time of our inspection.

### **Investigation and Technical Analysis**

8. For this particular case, it can be clearly established that the fire had originated within the engine compartment of the Insured Vehicle based on the circumstances of the case as well as given that there was no fire damage found on other areas of the Insured Vehicle.
9. Upon closer examination of the engine compartment, in particular to the engine block which was covered in fire extinguisher residue, we had found faint traces of greenish residue on several burnt stretches of original factory fitted wirings around the centre area of the engine compartment. The presence of such 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. We also observed that the negative terminal of the battery had partially melted. These physical evidences 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 13 - 17 below.



**Photo 13** shows the burnt stretches of original factory fitted wirings covered in fire extinguisher residue around the engine block, which is in the immediate vicinity where the fire to the Insured Vehicle had likely started. Faint traces of greenish residue were found on some of the wirings (circled). The presence of such greenish residue suggests occurrence of an electrical short circuit.



**Photo 14** shows a closer view of the faint traces of greenish residue found on some of the melted stretches of original factory fitted wirings (circled).



**Photo 15** shows a closer view of the faint traces of greenish residue found on some of the melted stretches of original factory fitted wirings (circled).



**Photo 16** shows the partially melted negative terminal of the battery of the Insured Vehicle (circled).



**Photo 17** shows a close up view of the partially melted negative terminal of the battery of the Insured Vehicle (circled).

10. From the Singapore Accident Statement which was made by Mr Yau Khai Hing (herein referred to as “**Mr Yau**”), who is the driver for Charlie- Mike Productions (herein referred to as “**CMP**”), we note that the fire to the Insured Vehicle had started at a time when he was driving the Insured Vehicle along Paya Lebar Road. Mr Yau was first alerted of the fire when he heard a loud ringing sound coming from the Insured Vehicle while he was driving.
11. We managed to speak to Mr Yau on 30 January 2018 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. According to Mr Yau, at about 1000hrs on 22 January 2018, he had bought lunch near Tai Seng MRT Station. He was heading towards Crocodile House located at 3 Ubi Avenue 3. As he was driving along Paya Lebar Road, he heard a loud ringing sound coming from the Insured Vehicle. He then smelt something burning within the interior compartment. He quickly wound down the driver window while making a left turn into Ubi Avenue 3 and stopped the Insured Vehicle on the left side of the road. He switched off the air-conditioning before switching off the engine of the Insured Vehicle. Mr Yau got out and saw smoke coming out of the front bonnet of the Insured Vehicle. He looked underneath and saw burning vehicular debris falling to the ground from the underside of the Insured Vehicle.

13. Mr Yau immediately called his mobile mechanic who was at Crocodile House. His mobile mechanic also saw thick smoke emitting from the front bonnet of the Insured Vehicle. He quickly grabbed a fire extinguisher and rushed towards Mr Yau. Mr Yau tried to splash water around the sides of the passenger seat while waiting for his mobile mechanic. Mr Yau held up the passenger seat while his mobile mechanic sprayed the engine compartment. The fire was put out in approximately 5 minutes. Mr Yau then covered the driver door window panel of the Insured Vehicle with clear plastic wrap as it had begun to rain and he did not want the interior compartment of the Insured Vehicle to get wet. Mr Yau's mobile mechanic then made towing arrangements.
14. According to Mr Yau, the police and SCDF arrived after the fire was extinguished. The police took Mr Yau's statement whilst firefighters proceeded to wash off the excess fire extinguisher residue and burnt/melted vehicular parts from the road. Mr Yau also assisted the SCDF in their preliminary investigations. The Insured Vehicle was towed within the same day to Jun Xing Motor Service (herein referred to as "**JX**") located at 5034 Ang Mo Kio Industrial Park 2, #01-321/337, Singapore 569537.
15. We asked Mr Yau why the insurance report was only made a week post-incident. According to Mr Yau, the Insured Vehicle was first towed to JX as Mr Yau sends the Insured Vehicle there for periodic servicing. The owner of CMP, Mr Jason Tan (herein referred to as "**Mr Tan**") wanted JX to examine the damages sustained to the Insured Vehicle and provide an estimate of the repair cost as initially Mr Tan intended to repair the Insured Vehicle at his own expense. However, Mr Yong, the owner of JX, explained to Mr Yau that the wiring harness was burnt and it was not a component that was readily available. Mr Yong would have to source for it from a scrapped vehicle of a similar make and model. He told Mr Yau that it would cost about \$5000 to \$6000 to repair the Insured Vehicle. Hence, Mr Tan arranged for the Insured Vehicle to be towed to Ah Lim. Both Mr Tan and Mr Yau went to Ah Lim to make an insurance report on 22 January 2018 at 0944 hours. Furthermore, they were unaware that an insurance report was necessary to be lodged regardless if they were making an insurance claim.
16. With regard to the history of the Insured Vehicle, we spoke to Mr Tan on 6 February 2018 who only returned to Singapore from an overseas work assignment on 5 February 2018.

17. Mr Tan mentioned that the Insured Vehicle was bought second hand in August 2017. The COE was renewed for another 5 years upon purchase of the Insured Vehicle. Mr Tan is the owner and main driver of the Insured Vehicle. Mr Yau helps Mr Tan out as and when required.
18. We asked Mr Tan regarding the vehicle speed limiter, 2 LED light strips, 2 aftermarket speakers and fuse breaker that were fitted onto the Insured Vehicle. He mentioned that he only installed the LED light strip located above the speedometer as visibility from the speedometer display was poor whenever he drove the Insured Vehicle at night. According to Mr Tan, the LED light strip located above the foot pedals, vehicle speed limiter, 2 aftermarket speakers and fuse breaker were already fitted onto the Insured Vehicle when he purchased it.
19. Pertaining to the maintenance aspect, Mr Yau mentioned that the Insured Vehicle will be sent for servicing every 10,000km at JX. The last servicing was done on 9 November 2017. During the course of our investigations, we were able to obtain from JX the latest servicing and repair records of the Insured Vehicle. The servicing package included changing of engine oil and oil filter. The front and rear brakes were checked and serviced. The rear right wheel oil seal was also replaced. Refer to Invoice 1 below.

30/01/2018 12:15PM FAX

**駿興摩托維修服務私人有限公司**  
**JUN XING MOTOR SERVICE PTE LTD**  
 111k 5034, Ang Mo Kio Industrial Park 2 #01-321, Singapore 569537  
 Tel: 6858 1074 Fax: 6481 5486 H/P: 9827 3971  
 Reg. No: 201508186N

**CASH BILL**  
 No: 3681

Payment: CASH Vehicle No: GEE 504 D Date: 9/11/17

Quantity	PARTICULARS	\$	cts.
1	oil filter	25	—
1	ENGINE OIL	96	—
	labour charge service, check front brake, Adjust Rear Brake	40	—
	REAR RH wheel oil seal packing (不系太利雪)		
TOTAL 總共		\$ 161	—
GST 7%		11.27	
Grand TOTAL		\$ 172.27	

Received by:

**Invoice 1** shows the last servicing package done on the Insured Vehicle on 9 November 2017 at JX (red arrows) which included changing of engine oil and oil filter. The front and rear brakes were checked and serviced. The rear right wheel oil seal was also replaced (circled).

20. Mr Yau added that after the servicing was done, he experienced a loss of power whenever he drove the Insured Vehicle upslope. The Insured Vehicle was brought to JX again on 2 January 2018. The clutch cover and clutch disc were replaced. Refer to Invoice 2 below.

**駿興摩哆維修服務私人有限公司**  
**JUN XING MOTOR SERVICE PTE LTD**

Blk 5034, Ang Mo Kio Industrial Park 2 #01-321, Singapore 569537  
 Tel: 6858 1074 Fax: 6481 5486 H/P: 9827 3971  
 Reg. No: 201508186N

**CASH BILL**  
 No: 3957

Type CASH Vehicle No. GEB 504D Date 2/1/18

Quantity	PARTICULARS	\$	cts.
1	clutch cover	240	-
1	clutch disc	190	-
	labour charge overhaul clutch	130	-
		<b>總共 TOTAL</b>	<b>\$560 -</b>
		GST 7%	39.20
		<b>Grand TOTAL</b>	<b>\$599.20</b>

經手人 received by \_\_\_\_\_

**Invoice 2** shows the last repairs done on the Insured Vehicle on 2 January 2018 at JX (red arrows). The clutch cover and clutch disc were replaced (circled).

21. After these repairs were done Mr Yau had not experienced any other mechanical or electrical problems with the Insured Vehicle till the day of the incident. He mentioned 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.

### **Incident Scene Photographs**

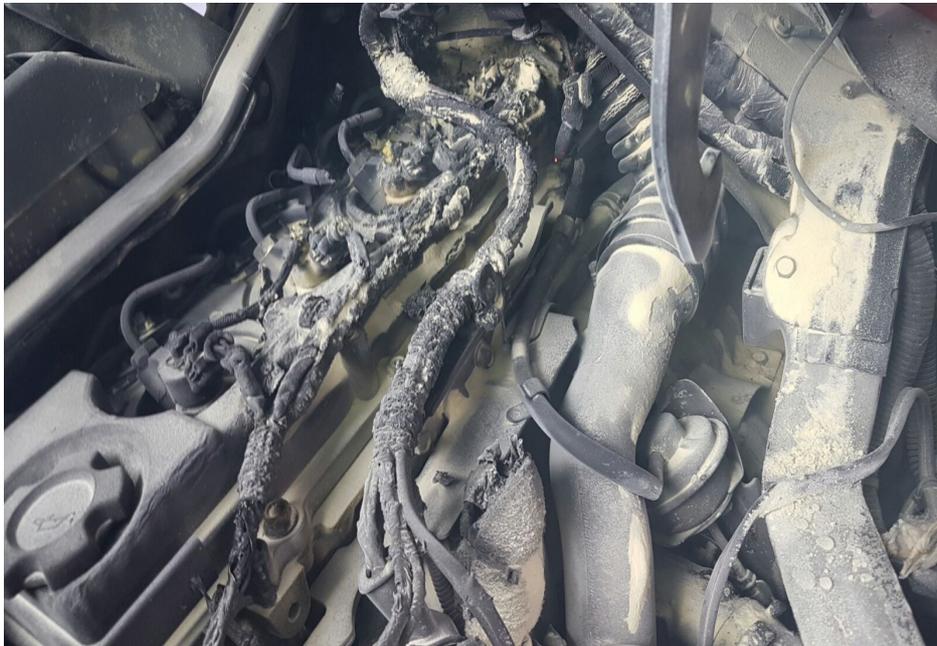
22. We were able to obtain from Mr Yau several photographs of the Insured Vehicle which were taken after he had stopped the Insured Vehicle and after the fire had been extinguished. In general, the information that could be gathered from these photographs had corresponded to the events that were related to us by Mr Yau. 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 left side of the road where the Insured Vehicle was positioned. See photos 18 - 20 below.



**Photo 18** shows thick smoke emitting from the front bonnet of the Insured Vehicle. In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Yau, which is he had stopped the Insured Vehicle by the left side of the road after turning left into Ubi Avenue 3 from Paya Lebar Road (circled).



**Photo 19** shows a firefighter making sure that the fire had been completely extinguished (arrowed). In general, the information that could be gathered from this photograph had corresponded to the events that were related to us by Mr Yau, which is the police (circled) and SCDF were present at the incident location.



**Photo 20** shows the engine compartment of the Insured Vehicle post- incident. In general, the damages sustained to the engine compartment and the fire extinguisher residue found on the burnt stretches of wirings had corresponded to the events that were related to us by Mr Yau, which is the fire had started from the engine compartment.

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 Yau had mentioned to us there were no indications of abnormally high temperatures on the Insured Vehicle. Moreover, an overheated engine would have caused the Insured Vehicle to stall. However in this case, Mr Yau was the one who noticed smoke emitting from the engine compartment while he was driving and 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 had caught fire. Furthermore, the location of where the Insured Vehicle was positioned was also observed to be not at a secluded location. In addition, the exterior body of the Insured Vehicle had not sustained any visible fire damage.
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 faint traces of greenish residue that were found on several burnt stretches of original factory fitted wirings around the centre area of the engine compartment of the Insured Vehicle, which was earlier discussed in paragraph 9 above.
26. Our checks with both local and international bodies and associations had revealed that at the time of writing this report, there were 2 manufacturer recalls for the Insured Vehicle. The first manufacturer recall was on 24 May 2012 which was for the;
- 1) Clutch Pedal Bracket - Bracket holding clutch master pump may break during continuous driving. In extreme case, it became difficult to release clutch during operation.
  - 2) A/T Control Cable - Lock plate securing automatic transmission control cable to steering column may be detached by driver's foot movement. When this happens, auto transmission may not be able to shift gear when selector lever is operated.
  - 3) Front Hub Bearing - Water may enter into front bearing hub causing damage to bearing. This will result in noise and vibration while on the move.

- 4) Alternator Pulley - Alternator Pulley clutch may break off resulting in noise during revolution. Warning lamp could be illuminated and in extreme cases, pulley may be detached. Not all vehicles are affected by the above 4 service campaigns - For more information, kindly contact the agent.

27. The first manufacturer recall was rectified on 13 May 2013.

28. The second manufacturer recall was on 12 February 2015 for the ABS Seal ring which was not appropriate. In very limited cases, water may go into the axle case from the ABS sensor mounting area.

29. The second manufacturer recall was however not rectified. See search result from LTA below.

#### Enquiry on Vehicle Recall - Vehicle Specific

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

Vehicle Owner Particulars	
Owner ID Type:	Business
Owner ID:	0469J 
Vehicle Details	
Vehicle Registration number:	GBB504D 
Make:	NISSAN
Vehicle Model:	URVAN PANEL LWB 3.0 5DR 5MT AIRBAG 2WD
Engine No.:	ZD30178622K
Chassis No.:	JN1MG4E25Z0781477
Recall Details	



1	Recall No.:	R2012070033	
	Manufacturer Recall Date:	24 May 2012	
	Estimated Completion Year of Recall:	2014	
	Brief Description (As Provided by Motor Dealer):	<p>1) Clutch Pedal Bracket - Bracket holding clutch master pump may break during continuous driving. In extreme case, it became difficult to release clutch during operation 2) A/T Control Cable - Lock plate securing automatic transmission control cable to steering column may be detached by driver's foot movement. When this happen, auto transmission may not be able to shift gear when selector lever is operated. 3) Front Hub Bearing - Water may enter into front bearing hub causing damage to bearing. This will result in noise and vibration while on the move. 4) Alternator Pulley - Alternator Pulley clutch may broke off resulting in noise during revolution. Warning lamp could be illuminated and in extreme case, pulley may be detached. Not all vehicles are affected by the above 4 service campaign - For more information, kindly contact the agent.</p>	
	Date Rectified:	13 May 2013	
	For more details, contact TAN CHONG MOTOR SALES PTE LTD		
	Hotline Information:	<p>TC Auto Clinic Pte Ltd at 62622212 Tan Chong Motor Sales Pte Ltd at 63570753/4/5 Autolution Industrial Pte Ltd at 64909666 Tan Chong Motor Sales Pte Ltd at 64694091/2/3</p>	
2	Recall No.:	R2015030101	
	Manufacturer Recall Date:	12 Feb 2015	
	Estimated Completion Year of	2016	
	Brief Description (As Provided by Motor Dealer):	<p>ABS Seal ring was not appropriate. In very limited cases, water may go into the axle case from ABS sensor mounting area.</p>	
	Date Rectified:	-	
	For more details, contact TAN CHONG MOTOR SALES PTE LTD		
	Hotline Information:	<p>TAN CHONG MOTOR SALES PTE LTD at 6467711 / 64694091</p>	

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## **Conclusion**

30. 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.
31. 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.
32. We found the Insured Vehicle to be fitted with additional electrical/electronic components which included a vehicle speed limiter, 2 LED light strips, 2 aftermarket speakers and a fuse breaker. The abovementioned electrical/electronic components do not require prior approval from LTA.
33. We are further of the opinion that the additionally fitted electrical/electronic components found on the Insured Vehicle could have possibly caused overloading to the electrical system of the Insured Vehicle.
34. 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 pose a fire risk.

### **Muhd Nazril**

*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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