

Your Ref: S7M005JG
Our Ref : CS/AXA17023790/N

19 December 2017

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 SLD 1405X ON 25 OCTOBER 2017

1. We refer to your letter dated 14 December 2017 and the instructions therein.
2. Our analysis, comments and opinions with respect to the cause of fire to the insured vehicle SLD 1405X (herein referred to as "**Insured Vehicle**") are set out below.

Inspection of the Insured Vehicle

3. The Insured Vehicle was physically inspected on 19 December 2017 at the premises of Enterprise Centre located at 20 Bukit Batok Crescent, Singapore 658080. Principal Consultant, Mr K K Lau was also present during this physical inspection.
4. A static inspection was carried out to the Insured Vehicle where the following general information was recorded:-

Vehicle Registration No.	: SLD 1405X
Make / Model	: OPEL ASTRA-H TWIN TOP 1.8AT
Chassis No	: W0L0AHL6795008706
Year of Registration	: 2009 (September)
Mileage	: 164, 966km

5. The Insured Vehicle was observed not to have sustained any visible fire damage all around. See photos 1 – 5 below.



Photo 1 shows the general view of the front portion of the Insured Vehicle at the time of our inspection.



Photo 2 shows the general view of the right portion of the Insured Vehicle at the time of our inspection.



Photo 3 shows the general view of the left portion of the Insured Vehicle at the time of our inspection.



Photo 4 shows a general view of the engine compartment of the Insured Vehicle at the time of our inspection together with Principal Consultant, Mr K K Lau. There was no damage of fire nature to the engine compartment.



Photo 5 shows the interior compartment of the Insured Vehicle, which was observed not to have sustained any fire damage.

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. Upon closer examination of the engine compartment, we had found worn tubings on some of the wirings. We did not find any burnt and/or melted wirings. There were also no burnt marks on any of the components in the engine compartment. Fluid stains were observed to have been formed around the front portion of the top camshaft cover of the engine. The presence of dust and/or dirt particles accumulated at the areas where the fluid stains had formed indicates that a fluid leak had occurred. There were also wet fluid stains around the front left corner of the front portion of the top camshaft cover of the engine. See photos 6 – 10 below.



Photo 6 shows a closer inspection of the engine compartment of the Insured Vehicle together with Principal Consultant, Mr K K Lau. We had found worn tubings on some of the wirings (circled). We did not find any burnt and/or melted wirings. There were also no burnt marks on any of the components in the engine compartment.

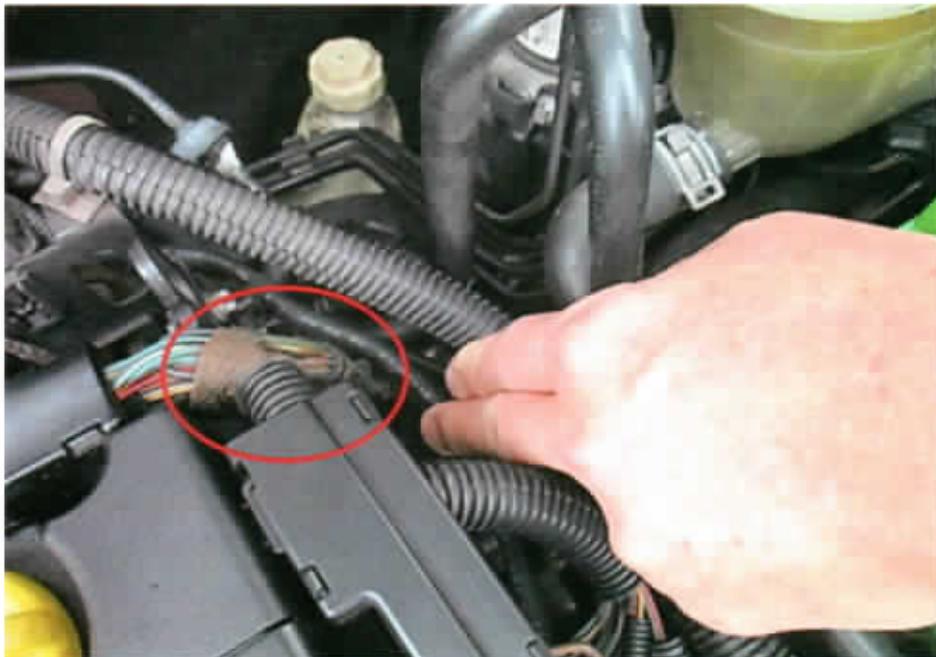


Photo 7 shows a closer view of the worn tubings on some of the wirings (circled).



Photo 8 shows fluid stains were observed to have been formed around the front portion of the top camshaft cover of the engine (circled). The presence of dust and/or dirt particles accumulated at the areas where the fluid stains had formed indicates that a fluid leak had occurred. There were also wet fluid stains around the front left corner of the front portion of the top camshaft cover of the engine.

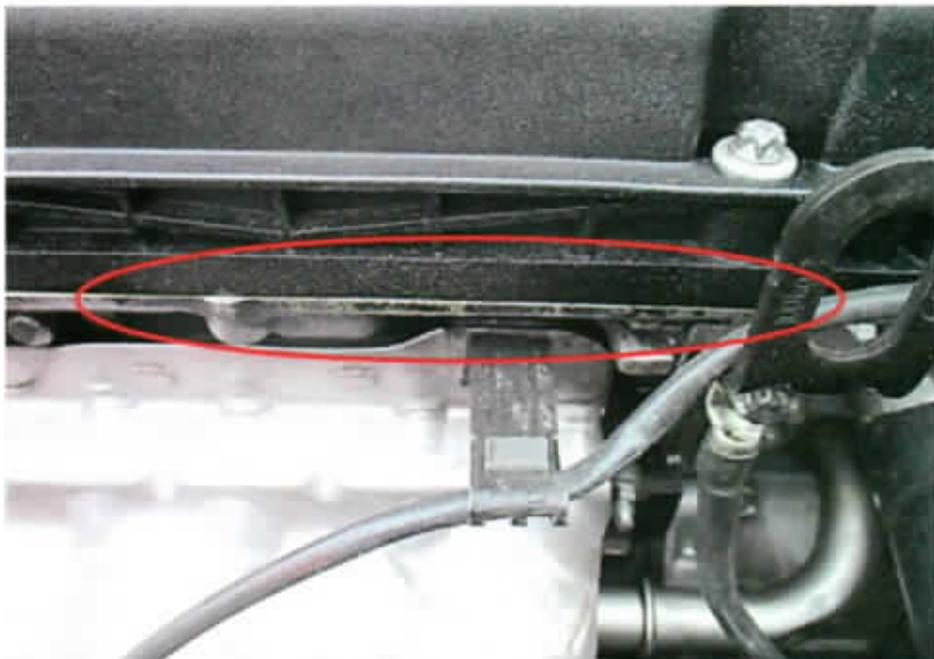


Photo 9 shows a closer view of the presence of dust and/or dirt particles which had accumulated at the areas where the fluid stains had formed (circled), indicating that a fluid leak had occurred.

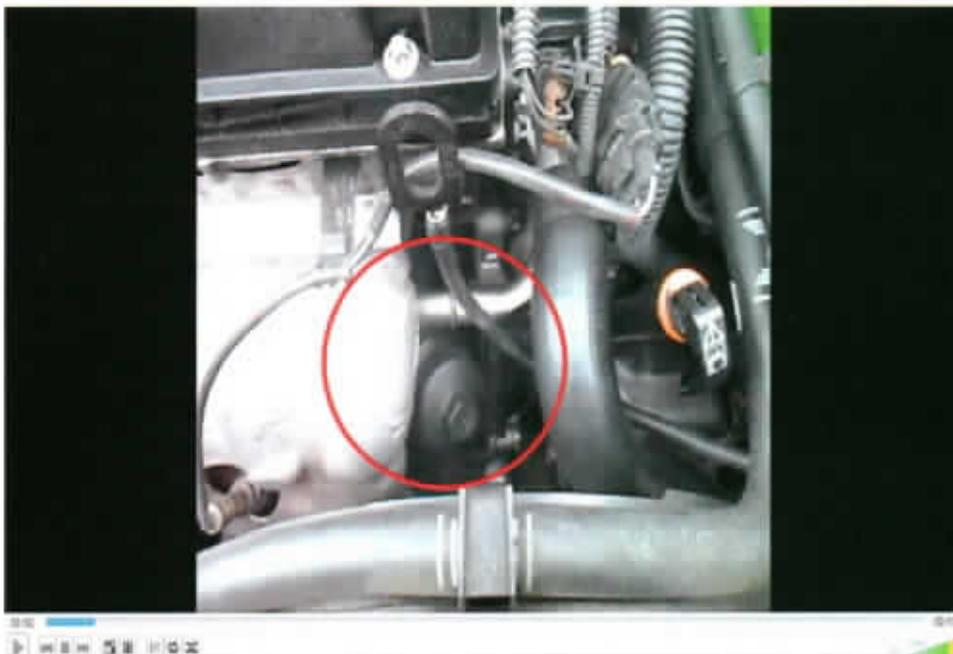


Photo 10 shows a closer view of wet fluid stains found around the front left corner of the front portion of the top camshaft cover of the engine (circled).

8. Following our observations that there were no visible damages of fire nature to the engine compartment of the Insured Vehicle, the battery was reconnected. We did not notice any sparks and/or smoke, which are possible signs of an electrical short circuit occurring. The Insured Vehicle was started and the engine was left to operate for approximately 20 minutes. After 10 minutes, we observed some engine oil seepage from the front portion of the top camshaft cover of the engine. We also detected a burnt smell followed by white smoke emitting from the front portion of the engine. We managed to take a video recording of these findings. However one would have to view the recording to see the smoke emission. Refer to screenshots 1& 2 below.



Screenshot 1 of the video recording shows the rotating belting (arrowed) of the Insured Vehicle to indicate that the engine of the Insured Vehicle was started and the engine left to operate for approximately 20 minutes.



Screenshot 2 of the video recording shows after letting the engine operate for 10 minutes, we observed some engine oil seepage from the front portion of the top camshaft cover of the engine. We also detected a burnt smell followed by white smoke emitting from the front portion of the engine (circled). However one would have to view the recording to see the smoke emission.

9. The Insured Vehicle was then driven forward twice. We found wet fluid stains on the ground directly below the engine compartment where the Insured Vehicle was positioned. Both patches of wet fluid stains found were believed to have been caused by the Insured Vehicle. These physical evidences would then appear to suggest that there is a fluid leakage from the engine compartment of the Insured Vehicle. See photos 11 - 14 below.



Photo 11 shows Principal Consultant, Mr K K Lau examining the fluid stains on the ground after the Insured Vehicle was driven some distance forward (arrowed). We found wet fluid stains on the ground directly below the engine compartment where the Insured Vehicle was positioned (circled).



Photo 12 shows a close up view of the wet fluid stains on the ground directly below the engine compartment where the Insured Vehicle was positioned (circled).



Photo 13 shows Principal Consultant, Mr K K Lau highlighting the second patch of wet fluid stains on the ground (circled) after the Insured Vehicle was driven some distance forward for a second time (arrowed).



Photo 14 shows a close up view of the second patch of wet fluid stains on the ground (circled) after the Insured Vehicle was driven some distance forward for a second time.

10. From the Singapore Police Report No. G/20171207/7036 and the Singapore Accident Statement, which was made by Ms Pereira Denise Esther (herein referred to as "**Ms Pereira**"), she was alerted upon seeing a flame and lots of smoke coming from the left side of the front bonnet while driving the Insured Vehicle.
11. We managed to speak to Ms Pereira on 2 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 Ms Pereira, at about 2000hrs on 25 October 2017, she was driving along Old Airport Road and heading towards Guillemard Road when she realized that the air- conditioning in the Insured Vehicle was getting hot. She noticed that other car drivers were looking at her. Shortly after, she saw a flame and lots of white smoke coming out of the left side of the front bonnet. She immediately stopped the Insured Vehicle at the bus stop outside the Old Airport Road Food Centre and switched off the engine. She mentioned that she was afraid to open the front bonnet. Instead she waited till the flame died out but there was still a lot of smoke. She called her mother to get the contact number of the towing company.

13. The smoke had cleared after half an hour. Ms Pereira then tried to start the engine. As the engine could be started up, she decided to drive the Insured Vehicle instead of towing it back home. Along the way the engine would stall every 10 minutes. She waited by the side of the road for some time and started up the engine again. She continued driving the Insured Vehicle in this manner till she reached her place of residence located at Block 215 Bedok South Avenue 1, #04-24, Singapore 469338.
14. The following day, Ms Pereira had the Insured Vehicle towed to SK Garage (herein referred to as "SK") located at 7 Soon Lee Street, #01-31, iSPACE, Singapore 627608. We managed to speak to Mr William, who is an agent of SK and a friend of Ms Pereira. Ms Pereira told Mr William to have a look at the Insured Vehicle and provide with an estimate cost of repairs. Mr William confirmed that the Insured vehicle was towed to SK on 26 October 2017. He tested the Insured Vehicle and informed Ms Pereira that there was an engine oil leakage from the camshaft cover. He quoted Ms Pereira a repair cost of approximately between \$9,000 to \$10,000 which included a full overhaul of the engine and replacing the gearbox with a re-conditioned unit. He advised her to file an insurance claim. Following that conversation, he did not hear from Ms Pereira for about a month. He then called Ms Pereira, asking her to tow the Insured Vehicle to an authorized workshop as soon as possible.
15. Ms Pereira then had the Insured Vehicle towed to Ah Lim Motor Co. (herein referred to as "Ah Lim") located at 10 Ang Mo Kio Industrial Park 2A, AMK Autopoint, #01-09, Singapore 568047. We managed to speak with Mr Wei Jie, an administration staff of Ah Lim. He informed us that the Insured Vehicle was towed to Ah Lim on 20 November 2017. He managed to obtain the contact number of Ms Pereira's mother, Mrs Sophia and informed her that Ms Pereira has to come down to Ah Lim to file the insurance claim within 14 days after the accident as per her insurance providers' claim policy. Mr Wei Jie was asked to inspect the Insured Vehicle and provide an estimate cost of repairs. Mr Wei Jie also noticed an engine oil leak. He quoted Ms Pereira a repair cost of approximately between \$1,000 to \$3,000 which included an engine oil servicing package and replacement of the timing belt as well as oil filter adaptor. Ms Pereira then told him that she wanted to make an insurance claim. She was informed to come down as soon as possible before 1730 hours before the workshop closes.

16. Mr Wei Jie mentioned that Ms Pereira only came down to Ah Lim on 30 November 2017 at 1745 hours. She was told to fill up the claim forms and return to Ah Lim the next day as the workshop was already closed but she did not do so. The Insured Vehicle was towed from Ah Lim on 2 December 2017.
17. We found out from Ms Pereira that the Insured Vehicle was towed to SME Motor Pte. Ltd. (herein referred to as "**SME**") located at 1 Kaki Bukit Avenue 6, Autobay @ Kaki Bukit, #02-15, Singapore 417883. We managed to speak with Mr Sebastian, an administration staff of SME. He informed us that Mrs Sophia called SME on 2 December 2017 and requested for the Insured Vehicle to be towed from Ah Lim to SME. Ms Pereira came down to SME on 13 December 2017 and made the insurance report. She brought along a police report which she had filed on 7 December 2017 at the Bedok Police Divisional HQ at 2315 hours.
18. With regard to the history of the Insured Vehicle, we were able to gather from Ms Pereira that the Insured Vehicle was purchased second-hand in 2016 with 3 years of COE left. Ms Pereira is the owner and only driver of the Insured Vehicle. To the best of her recollection, there has not been any major mechanical problem and/or electrical problem with the Insured Vehicle.
19. Pertaining to the maintenance aspect, Ms Pereira sends the Insured Vehicle for periodic servicing. She also mentioned that she rarely drives the Insured Vehicle.
20. During the course of our investigations, we were also able to obtain from Ms Pereira, documents relating to the servicing done to the Insured Vehicle since it was purchased. The first servicing was done by the previous owner of the Insured Vehicle before Ms Pereira took over. The servicing was done at United Motor Trading Pte. Ltd located at Block 9004 Tampines Street 93, #01-76/02-86 Singapore 528838 on 8 July 2016. The servicing package included changing of engine oil, thermostat, temperature switch, oil cooler gasket and front brake pads. The radiator coolant was also flushed. Refer to invoice 1 below.



TAX CASH SALE

UM No TP- **56829**



聯合汽車貿易 (私人) 有限公司
UNITED MOTOR TRADING (PTE) LTD.

Part Office: 55, North Canal, Singapore 238223, Tel: 62911863 (9 Lines), Fax: 065 62963796
Part & Service: 814, 8044 Tampines Street 93 #01-76/75/74 Singapore 328438
Centre: Tel: (65) 62963561, 67414103 Fax: (65) 67863106
Email Address: umt@umt.com.sg
Web Page: http://www.umt.com.sg
GST REG NO: S210012520-7
Co. REG No: 197108345

M/s Cash DATE: 8-7-16

Model Q Ast 4 Door Vehicle No. SLDK05X Mileage (km) 149656

No.	Quantity	Brand, Part No. And Description	Unit Price	Amount
1	1	5W50 Eng Oil Service Package		135.00
	1pc	Q Ast Thermostat		30.00
3	1pc	Q Ast Temp Switch		25.00
4	1set	Q Ast Engine Coolant Flushing		80.00
5	1	labar		180.00
6	1set	Q Ast Oil Cooler Gasket		75.00
7	1set	Q Ast Fr Brake Pad		95.00
8				
9				
10				
			TOTAL	903.00
			ADD GST 7%	63.21
			AMOUNT DUE	966.21

* Goods Sold are not returnable.

Payment: Cash / NETS / VISA / Cheque No. _____

Remarks: _____

We specialise in servicing motor cars, aircon, knocking, panel, beating, spray painting, vehicle inspection, insurance claims & stockist of spare parts.









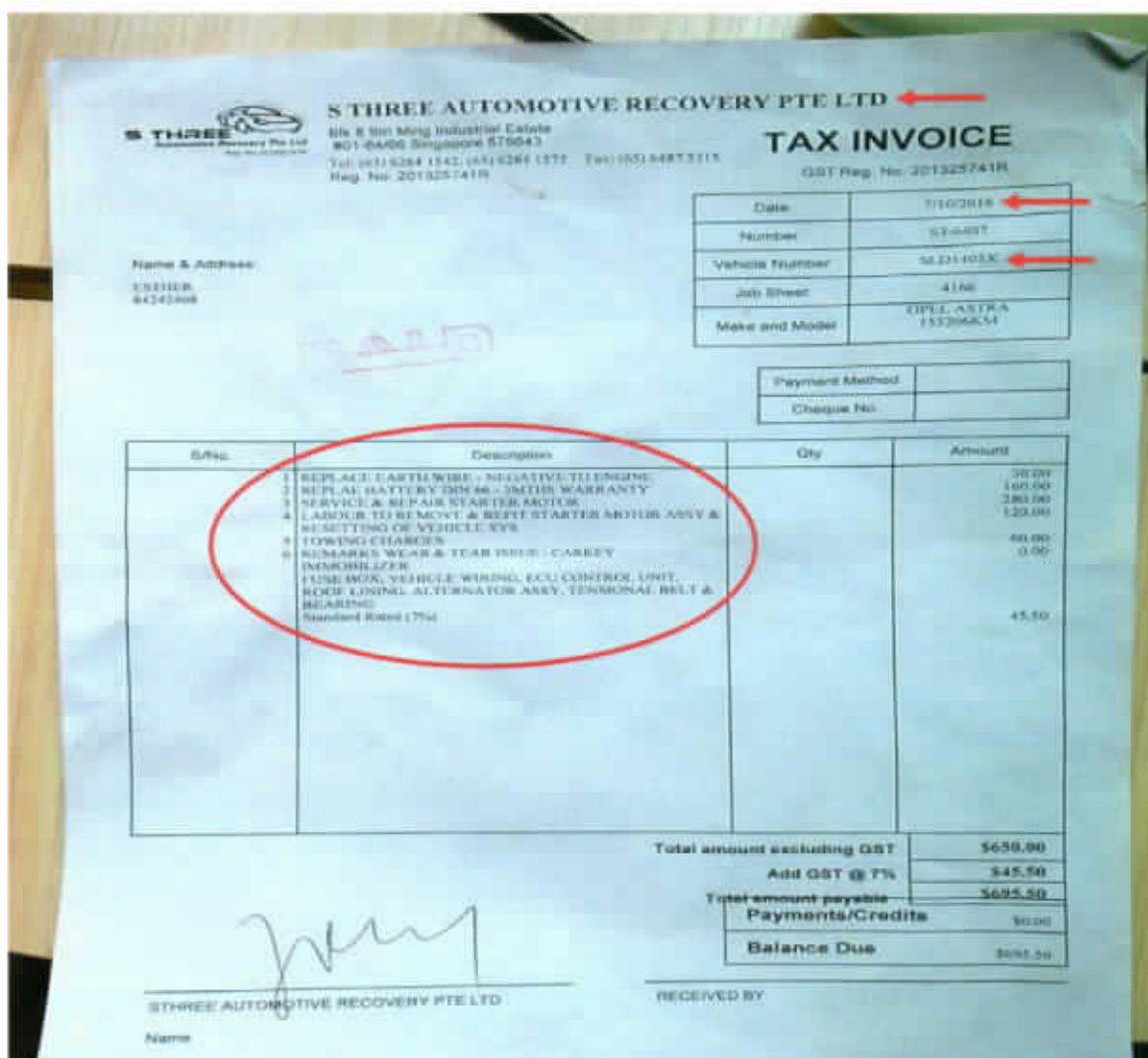




UNITED MOTOR TRADING (PTE) LTD.

Invoice 1 shows the first servicing done on the Insured Vehicle at United Motor Trading Pte. Ltd. on 8 July 2016 (red arrows). The servicing package included changing of engine oil, thermostat, temperature switch, oil cooler gasket and front brake pads. The radiator coolant was also flushed (circled).

21. After purchasing the Insured Vehicle, Ms Pereira was experiencing some electrical and electronic problems. She rectified those issues at S Three Automotive Recovery Pte. Ltd. (herein referred to as "S Three") located at 8 Sin Ming Industrial Estate, #01-64/66, Singapore 575643 on 7 October 2016. The earth wire and battery were replaced. The starter motor was repaired. There was a problem with the Insured Vehicles' car key immobilizer unit. Hence the fuse box, vehicle wiring, Engine Control Unit (ECU), roof lining, alternator assembly, tensional belt and tensional bearing were checked. Refer to invoice 2 below.



S THREE AUTOMOTIVE RECOVERY PTE LTD

816 8 Sin Ming Industrial Estate
#01-64/66 Singapore 575643
Tel: (65) 6264 1542; (65) 6264 1572 Fax: (65) 6487 2215
Reg. No: 201325741R

TAX INVOICE
GST Reg. No: 201325741R

Name & Address:
193311R
9424398

Date: 07/10/2016
Number: ST-608T
Vehicle Number: SG 21-103X
Job Sheet: 4166
Make and Model: OPEL ASTRA 15329AK51

Payment Method:
Cheque No.:

S/No.	Description	Qty	Amount
1	REPLACE EARTH WIRE - NEGATIVE TO ENGINE		20.00
2	REPLACE BATTERY D5546 - 3MONTH WARRANTY		195.00
3	SERVICE & REPAIR STARTER MOTOR		280.00
4	LABOUR TO REMOVE & REPT STARTER MOTOR ASSY & RESETTNG OF VEHICLE SVS		120.00
5	TOWING CHARGES		60.00
6	REMARKS WEAR & TEAR (TIRE) : CARREY		0.00
	IMMOBILIZER		
	FUSE BOX, VEHICLE WIRING, ECU CONTROL UNIT, ROOF LINING, ALTERNATOR ASSY, TENSIONAL BELT & BEARING		
	Standard Rate (7%)		45.50

Total amount excluding GST: \$659.00
Add GST @ 7%: \$45.50
Total amount payable: \$704.50
Payments/Credits: \$0.00
Balance Due: \$704.50

S THREE AUTOMOTIVE RECOVERY PTE LTD
Name: _____

RECEIVED BY: _____

Invoice 2 shows the electrical and electronic issues rectified at S Three on 7 October 2016 (red arrows). The earth wire and battery were replaced. The starter motor was repaired. There was a problem with the Insured Vehicles' car key immobilizer unit. Hence the fuse box, vehicle wiring, Engine Control Unit (ECU), roof lining, alternator assembly, tensional belt and tensional bearing were checked (circled).



22. The latest servicing was done by Ms Pereira at S Three on 19 December 2016. The servicing package included changing of engine oil, oil filter and spark plugs. The alternator assembly was repaired and serviced. The rear left signal light bulb was replaced. The tyres were rotated. The main pulley system which was reported to have an oil leak and was rectified. Refer to invoice 3 below.

S THREE AUTOMOTIVE RECOVERY PTE LTD ←

8B 8 Sin Ming Industrial Estate
#01-04/06 Singapore 570643
Tel: (65) 6284 1542, (65) 6284 1575 Fax: (65) 6481 5111
Reg. No. 201326741R

TAX INVOICE
GST Reg. No. 201326741R

Date: 19/12/2016 ←
Number: S3-0040
Vehicle Number: SLE114055 ←
Job Sheet: 4432
Make and Model: OPEL ASTRA 1334175A

Name & Address:
EST100
#4242408

Payment Method:
Cheque No:

S/No.	Description	Qty	Amount
1	SERVICING- REPLACE FULLY-SYNTHETIC ENGINE OIL, OIL FILTER, DRAIN GASKET AND FLUSH		278.00
2	REPLACE SPARK PLUGS (529X4)		80.00
3	REPAIR AND SERVICE ALTERNATOR ASSEMBLY		180.00
4	LESS DISCOUNT 10% FOR ALL OF THE ABOVE		-63.00
5	LABOUR TO REMOVE AND REFIT ALTERNATOR ASSEMBLY		100.00
6	ROTATE TYRES- FOC		0.00
7	REPLACE REAR SIGNAL LAMP BULB LH- FOC		0.00
	REMARKS: MAIN PULLEY SYSTEM OIL LEAK, TRANSMISSION CONTROL MODULE (Standard Rate 17%)		49.71

Total amount excluding GST: 578.00
Add GST @ 7%: 549.71
Total amount payable: 5259.91
Payments/Credits: 50.00
Balance Due: 3759.91

S THREE AUTOMOTIVE RECOVERY PTE LTD
Name: _____

RECEIVED BY: _____

Invoice 3 shows the latest servicing done on the Insured Vehicle at S Three on 19 December 2016 (red arrows). The servicing package included changing of engine oil, oil filter and spark plugs. The alternator assembly was repaired and serviced. The rear left signal light bulb was replaced. The tyres were rotated. The main pulley system which was reported to have an oil leak was rectified (circled).

23. Ms Pereira mentioned that after the servicing was done she had not experienced any mechanical or electrical problems with the Insured Vehicle till the day of the incident. She mentioned that there were neither warning lights displayed nor was there an abnormal rise in temperature of the Insured Vehicle when she was driving the Insured Vehicle on the day of the incident.
24. However she did mention that there was still engine oil leaking from the Insured Vehicle shortly after the latest servicing as she had often noticed wet fluid stains on the ground directly below where the Insured Vehicle was positioned. She would occasionally top up the engine oil herself as she did not have time to bring the Insured Vehicle to the workshop because of her tight work schedule.
25. Ms Pereira mentioned that since the purchase of the Insured Vehicle, she has not done any modification(s) and/or additionally fitted any electrical or electronic component(s) to the Insured Vehicle.
26. She also informed us that she did not take any photographs during the time and/or after the incident.
27. 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.

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:	7308G ←
Vehicle Details	
Vehicle Registration number:	SLD1405X ←
Make:	OPEL
Vehicle Model:	ASTRA 44 TWIN TOP 1.8iAT
Engine No.:	Z18XR20H02863
Chassis No.:	WOL0MHL6795000706
Recall Details	
No Recall Detail records ←	

OK

Conclusion

28. Having investigated and technically analysed the damages to the Insured Vehicle, we are of the view that there was no fire to the Insured Vehicle.
29. The engine of the Insured Vehicle was able to be started up and continued to operate normally without stalling. Our investigations revealed oil seepage from the front portion of the top cover of the engine followed by oil burning smells and smoke emitting from the front portion of the engine after it was operating for a certain period of time. We did not find evidence of any burnt components in the engine compartment of the Insured Vehicle as a result of fire other than smoke stains caused by the oil leaks.
30. 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.
31. 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.



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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