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RESPONSE TO REPORTS

Danny Raj Muniappan JLX 215

Central Chambers Law Corp File Ref: TBA
Envista Ref: 125387-G4S3
Report Date: 19 July 2021

For:

Mr Ramasamy K Chettiar
Central Chambers Law Corporation
150 Cecil Street
#03-00
Singapore 069543

Contents

Purpose

1. On 10th June 2021, Envista Forensics Pte Ltd (Envista) received this assignment from Mr Ramasamy K Chettiar of Central Chambers Law Corporation. The scope of this assignment was to give an opinion on the causes an Audi car being driven along the SLE came to a stop.

Background

2. Envista produced a report on the possibilities where a car can come to a stop while driving on 30th June 2021 and this report analyses the report dated 3rd July 2021 by LKK Auto Consultants Pte Ltd and supplementary affidavit dated 1st July 2021 by Mr. Ang Zhiqiang.

Comments

Supplementary Affidavit by Mr. Ang Zhiqiang

3. In paragraph 6 of the affidavit, Mr Ang Zhiqiang (Mr. Zhiqiang) states the following:

> *"When I realised that there was a sudden loss of power in the Vehicle I signalled left as I wanted to make my way to the road shoulder. During this period, I did not notice the Vehicle's dashboard as I was concentrating on the traffic on my left. I therefore did not notice any warning lights or warning sounds from the dashboard."*

There was no reference to the warning lights until Mr. Zhiqiang felt a sudden power loss. This paragraph provides an explanation of what he did after he felt the power loss. As Mr. Zhiqiang claims that he was trying to move towards the shoulder of the road, the car would have been expected to be more on the left side of the lane, however as the arrow in photograph 1 shows, Mr. Zhiqiang had stopped the car closer to the right side of the lane. This photograph was taken from the video footage just before the impact. Envista cannot understand the process by which the car reached the right-hand lane when its driver intended it to be taken left.

1. The arrow indicates the car was stopped to the right edge of the lane

Report by Mr. Ang Bryan Tani

4. This section analyses the report by Mr. Ang Bryan Tani (Mr. Tani) and paragraphs 1 to 5 are not commented as these were mainly facts obtained by him.
5. Paragraph 6 of Mr. Tani's report indicates the invoice dated 27th September 2017 was for the work done on 15th June 2017. However, the date of service was not indicated on this invoice and attached in Appendix A. It is not clear how Mr. Tani obtained the date of service.
6. Paragraph 7 of Mr. Tani's report indicates that frequency of owner's/driver's mindset and proactiveness is shown in the maintenance aspect of the car. It is Envista's opinion Item # 6 in Table 1 does not demonstrate proactiveness as it appeared to have been replaced only after a failure. (Table 1 is repeated from Envista's report dated 30th June 2021 for easy reference).

No	Date	Remarks
1	12th November 2015	Front bumper, radiator grille and headlamps replaced. Oil filter and engine oil renewed. Mileage: 142743 km
2	2nd January 2016	10 number upper and lower arm bushes replaced.
3	13th May 2016	Oil filter and engine oil renewed.
4	19th May 2016	Water pump, coolant, thermostat, hoses and 4 in 1 pipe replaced.
5	3rd June 2016	Oil separator, hoses, intake manifold gaskets and fan belts replaced.
6	15th July 2016	Tow -king trolley charges 120 dollars. Filter, Megatronic, gasket and transmission fluid replaced, and programming was done.
7	6th August 2016	Rear boot locker and damper replaced.
8	11th September 2016	Oil filter and engine oil replaced. Mileage: 161872 km

No	Date	Remarks
9	5th December 2016	Front and rear brake pads and sensor replaced. Left side intake manifold was also replaced.
10	10th January 2017	Air valve, combi valve and its gasket and power steering fluid were renewed. Engine oil and filter were also renewed. Mileage: 172810 km.
11	29th March 2017	Spark plugs replaced
12	21st June 2017	Front and rear wheel bearings, front brake pad, front caliper piston repair kit, pump bearing and radiator replaced.
13	27th September 2017	Two tyres replaced.

Table 1 – Summary of Service/Repairs

7. Based on some of the invoices, this car had travelled 142,743 km on 12th November 2015 and 172,810 km on 10th January 2017. Therefore, the following services should have been carried out by the owner as per the maintenance schedule by Audi (refer Appendix B for the actual mileage these checks to have been performed during this period). However, the copies of invoices do not indicate that these checks were carried out by NGS Trading. Therefore, the claim that the owner/driver was proactive is, in Envista's opinion, not supported by the available evidence.
    - Engine compartment – check for leaks
    - Battery – check and replace
    - Dust and pollen filter – replace
    - Spark plugs – Replace at 35,000 miles or 3 years whichever occurs first. Thereafter, every 40,000 miles or 4 years whichever occurs first.
    - Power steering fluid – check, add if necessary
    - Ribbed V belt – Replace only the V belt for the compressor drive
    - Wiper blades – check condition and replace if necessary
    - Wiper/washer/ headlight washer – check adjustment and function add fluid if necessary
    - Lights – Check all lights via instrument cluster. Check license plate light from the rear of the vehicle
    - Interior lights – check all interior lights, glove box illumination, control lights and MMI (if applicable)
    - Doors – Lubricate doors, check straps and hood latch
    - Horn – check function
    - Brake system – check for damage, leaks, pad thickness and fluid level
    - Brake discs – check thickness
    - Exhaust system – Check for damage, leaks
    - Front and rear axle – check for excessive play, check dust seals on ball joints and tie rod ends
    - Drive shaft boots – check
    - Automatic transmission and final drive – check for leaks
    - Underbody – check for damage and leaks

- Road test – check braking, kick-down, steering, electrical, heating and ventilation systems, air conditioning, ASL Automatic Shift Lock, power accessories and reset driver information display

8. According to the website, www.audi.com.sg, only two Audi Centres were authorised by Audi for maintenance and repairs of Audi vehicles and NGS Trading was not included in their website by Audi as an authorised repairer. Furthermore, the invoices from NGS Trading did not indicate that all the services indicated by Audi were not carried out (Refer to paragraph 7). Therefore, how the parts used by NGS Trading was considered as genuine by Mr. Tani is not known.
9. Paragraph 8 of Mr. Tani's report was taken from the affidavit of Mr. Zhiqiang. However, there was nothing mentioned about paying attention to the dashboard for appropriate warning and consider taking appropriate action.
10. Paragraph 9 of Mr. Tani's report states that he tried to clarify the circumstances that led to the stalling of the car. However, no details of the circumstances were provided.
11. Paragraph 10 of Mr. Tani's report states that Mr. Zhiqiang did not notice if there was any warning. The subject vehicle is designed with warning systems to help prudent drivers in advance so that unwanted incidents such as this can be avoided. The owner's manual for Audi states the following at various locations in the manual regarding warnings:

> "If there is a malfunction somewhere in the instrument cluster, dEF will appear in the trip odometer and will stay on. Contact your authorised dealer to have the problem corrected."

> "When the system detects a malfunction, the warning/indicator light will flash for approximately one minute and then remain continuously illuminated. This sequence will continue upon subsequent vehicle starts up as long as the malfunction exists. Contact your authorized Audi dealer and have the malfunction corrected".

    a. In addition to these the Owner Manual also explains that the car was designed with two levels of warnings namely, "priority 1 malfunction" and "priority 2 malfunction." A priority 1 malfunction will produce an audible warning tone in addition to a red symbol display on the dashboard. Alternator failure, brake system malfunction, engine coolant level too low, engine coolant temperature too high, engine oil pressure too low, refill engine oil now, steering malfunction and ignition lock malfunction are the priority 1 malfunctions. However, the manual does not indicate that the car would have stopped for these malfunctions. It clearly states the car can be driven to the nearest service workshop. For the engine coolant malfunction, it recommends the driver stop as soon as possible and when it is safe to do so. Only for the steering malfunction warning, does the manual recommend the vehicle be stopped. For the ignition lock malfunction, the manual recommends not to switch off the ignition. Therefore, Mr. Zhiqiang would have noticed the warning display, heard the noise if the warnings were priority 1 warnings and the car would not have stalled for any malfunction.
    b. Priority 2 malfunctions also display a yellow warning and also warning tones are sounded. Once again, there was no recommendations for the car to be stopped for these malfunctions. The manual recommends the respective area to be rectified as soon as possible either by taking the car to an authorised dealer of by taking appropriate action such as topping up engine oil etc.

12. Paragraph 11 of Mr. Tani's report states that after the accident Mr. Zhiqiang was able to start

the car and move forward by a few meters. Mr. Zhiqiang also stated this in his affidavit that he did so at the request of the paramedics who arrived at the scene after the incident. Therefore, this can be a fault that was reset after the accident. The fault could have been reset due to the impact or overheated radiator due to water pump issue and the overheated radiator could have cooled down during this interval for the car to able to restart. According to the owner's manual of Audi, it states that to stop the car for priority 1 level alarm for engine cooling system malfunction, check and fill coolant, if necessary and continue to drive if coolant warning light goes off. As the repair details following the accident was not provided, this cannot be evaluated.

13. Paragraph 12 of Mr. Tani's report states:

> *"It is not often that a motor vehicle is able to be re-started normally and driven forward (without any rectification work done) when initial attempt(s) to re-start the motor vehicle was unsuccessful after experiencing loss of power and stalling. Such occurrence indicates to me that the motor vehicle had likely experience an issue of electronic nature that was intermittent".*

In the event the engine was overheated due to various reasons and stalled, the time this car was stationery would have cooled down the engine to re-start it after the accident.

14. Paragraph 13 of Mr. Tani's report explains about various sensors and electronic controls generally found in a car.
15. Paragraph 14 of Mr. Tani's report states the loss of power could be attributed to a sudden malfunction of a sensor or sensors. Please refer paragraph 11 for sensor malfunctions. If the sensor failure is in the way manual states, the malfunction indicator light will remain for a period of time to alert the driver. It does not fail totally as suggested by Mr. Tani.
16. Paragraph 15 of Mr. Tani's report states the following:

> *"Some of the sensors affecting the operation of the engine and transmission are the crankshaft position sensor, camshaft position sensor, throttle position sensor, airflow sensor, transmission pressure sensor, temperature sensor and fuel pressure sensor amongst others. It is not unusual for such electronic sensors to first malfunction intermittently before it completely fails. However, without the benefit of any detail checks and/or an electronic scan of the various control modules of the Motor Car, the sensor that had potentially malfunctioned, causing the loss of power and breakdown of the Motor Car could not be determined. "*

NGS Trading was not an authorised repairer for Audi.Therefore, NGS Trading may not be fully equipped to check and maintain the subject car. Most of the items pointed out in paragraph 7 that should have been carried out between the period 12th November 2015 and 10th January 2017 was not carried out by NGS Trading. Therefore, maintenance recommended by Audi was not carried out and if the sensors had malfunctioned, it cannot be ruled out due to inadequate maintenance due to a workshop that was not in the Audi approved list.

17. Paragraph 16 of Mr. Tani's report explains about electronic controls and warning systems in a car. Paragraph 17 of Mr. Tani's report details about two examples of how these warning systems operate.
18. Paragraph 18 of Mr. Tani's report states the following:

> "*Typically, a check engine warning light or transmission warning light will appear on the instrument panel of a motor vehicle in the event of a potential issue to the engine and transmission. The duration between first*

illumination of these warning lights and start of malfunction signs or symptoms can be very short. In some instances, warning lights only appear after signs or symptoms of the malfunction."

If warning signs are not attended by the driver when the warning signs appear, the car will eventually stop. Similarly, a car that was not properly maintained as per the recommendation by Audi, then also the duration between the warning and stoppage can be short. There was no evidence that numerous items in paragraph 7 were carried out. The owners manual did not state that the cars will stop suddenly. For priority 1 warning, which is for more serious malfunction, the manual states that the driver can safely drive to the nearest Audi workshop. Only for steering lock malfunction that the vehicle is to be stopped because it will not stop on its own. As the driver did not state at any stage about steering lock, Envista rules out this malfunction. Therefore, how Mr. Tani arrived at this conclusion of a very short duration for the car to stop is not known.

19. Paragraph 19 of Mr. Tani's report states that a sudden loss of power was experienced without the motor car displaying any pre-malfunction signs or symptoms. However, paragraph 6 of Mr. Zhiqiang's affidavit states he did not pay attention to the dashboard. The duration between the warning and stoppage was not known in this case as this information was not provided anywhere. In addition, there were no details on the type of failure experienced in this case. Therefore, how Mr. Tani concluded that there was no display of warning before the car was stopped is not supported. If overheating was the cause of the stoppage, then the car would have started after 15 to 30 minutes as the engine, or its components would have cooled down during this interval. If this were the case, then the driver would have had sufficient time before the car stalled from the time warning signs started to appear on the car display.
20. Paragraph 20 of Mr. Tani's report states that the lack of pre-malfunction or symptoms would make it difficult for an owner/driver to send the motor vehicle to a workshop for rectification of the issue before malfunction occurs or to safely manage the motor vehicle to the side of a roadway to avoid obstruction to other road users. Once again, without knowing the exact type of failure experienced by this car, it is difficult to comment on this. One of the faults would have been overheating of the engine and this would have had sufficient time to respond. In addition, warning tones also would have sounded as per the owner's manual. Therefore, this conclusion by Mr. Tani is not supported.
21. Paragraph 21 of Mr. Tani's report states that the frequency rate is higher if the motor vehicle is not regularly maintained, serviced or replacement advice is ignored by the driver. Considering a large number of items were not attended based on the recommendations by Audi, this type of failure can be considered avoidable.

22. Paragraph 22 of the report by Mr. Tani states that this car was well maintained by Mr. Zhiqiang. However, based on the details provided in paragraph 7, this car was not maintained in accordance with manufacturer specifications and recommendations.

Conclusions

23. It is Envista's professional opinion that:

    1. This car was not maintained in an authorised workshop by Audi. Several items that should have been checked as per the recommendation by Audi appeared to have not been checked and confirmed to be in proper working condition.

2. As the workshop was not an authorised workshop by Audi, the quality and correctness of the spare parts used for the repairs cannot be assured. Furthermore, some of the repairs were carried out only after the items failed and would not fall under the category of preventive maintenance to claim that this car was maintained well.

3. The warning systems are designed to alert the driver/owner in advance that some form of repair is needed. However, if the car was not maintained properly, or the warnings signs were ignored/neglected, stoppage of car can be expected to occur sooner or later.

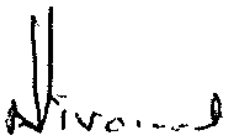
4. In addition to the warning display, the owner's manual states warning tones would have sounded in the event of any malfunction but no such warning sounds were reported as being heard by the driver.

Closure

24. This report is for the exclusive use of our client and is not intended for any other purpose. Our report is based on information made available to us at the time of our investigation. Should additional information become available, we reserve the right to determine the impact, if any, of the new information on our opinions and conclusions and to revise our opinions and conclusions if necessary and warranted by the discovery of additional information.

25. Thank you for allowing Envista to provide this service. If you have any questions or need additional assistance, please call or email.

Envista Forensics



Mr. Sivasothy Nanthagopal
Senior Technical Consultant
Envista Forensics Pte Ltd

Appendices

A. Invoice Dated 27th September 2017 by NGS Trading
B. Scheduled Maintenance for Audi S4

Appendix A
Invoice Dated 27th September 2017 by NGS Trading

NGS TRADING

Blk 10 Ang Mo Kio Ind. Pk 2a #02-01 AMK AutoPoint Singapore 568047
Tel: 64815727 Fax: 64815772 Email: ngstrading94@gmail.com
Reg No.:51106300L

CASH SALES

JAMES ANG - SFJ1223T

TEL : 9721 5614 FAX :

No. : **CS201709-40**
Veh No : SFJ1223T S4 3.0 8V WA
Mileage :
Date : 27/09/2017
Page : 1 of 1

Description	Amount S$
245/40ZR18 TYRE 2PCS CHANGE ON SFJ1223T	680.00

SINGAPORE DOLLAR SIX HUNDRED EIGHTY ONLY

Net Total **680.00**

Notes :
1. All cheques should be crossed and made payable to **NGS TRADING**
2. Goods sold are neither returnable nor refundable.

Authorised Signature

Appendix B
Scheduled Maintenance for Audi S4

Audi Service

2010 Scheduled Maintenance Intervals

Miles (in thousands)	5/25/45/65/85/105/125	15/55/95	35/75/115
Kilometers (in thousands)	8/40/70/100/130/160/190	25/85/145	55/115/175
Engine Oil/Oil Filter – change oil and replace filter	●	●	●
AdBlue Fluid – fill completely with fresh fluid (maximum capacity: 23 liters) and adapt learned values for AdBlue tank under guided fault finding after filling fluid	● Audi Q7 3.0L TDI only	● Audi Q7 3.0L TDI only	● Audi Q7 3.0L TDI only
Cooling System – check level, add if necessary		●	●
Engine On-Board Diagnostics – check fault memory		● A3, A6, S6, A8 only	● A3, A6, S6, A8 only
Engine Compartment – check for leaks		●	●
Battery – check and replace if necessary		●	●
Dust and Pollen Filter – replace		●	●
Spark Plugs – replace at 35,000 miles or 3 years, whichever occurs first. Thereafter, every 40,000 miles or 3 years, whichever occurs first.			● A4, A5 and TTS with 2.0L TFSI engine only
– replace at 55,000 miles or 6 years, whichever occurs first. Thereafter, every 60,000 miles or 6 years, whichever occurs first.		● S5K only: except A4, A5 and TTS with 2.0L TFSI engine	
Power Steering Fluid – check, add if necessary			●
Air Cleaner – clean housing, replace filter element		● S5K only: except Audi Q7 4.2L	● 7 SK only: Audi Q7 4.2L only
Ribbed V Belt and Tensioner – check condition and replace if necessary		● R8 only	● Audi Q7 3.6L, R8 only
Ribbed V Belt – check condition, replace if necessary. Check tension of belt drive with manual tensioner and retension if necessary.			● 7 SK only: V6 FSI, V6 TFSI (rear belt), 2.0L TFSI, 5.2L V10 FSI, 4.2L V8 FSI only
– replace only the V belt for the compressor drive			● 7 SK only: 3.0L TFSI only
Snow Screen for Air Cleaner – clean		● A4, S4, A5, S5 and A6 only	● A4, S4, A5, S5 and A6 only
Fuel Filter – remove water		● Audi Q7 3.0L TDI only	
– replace		● A3 2.0L TDI only	● Audi Q7 3.0L TDI and A3 2.0L TDI only
Diesel Particulate Filter (DPF) – check ash loading according to manufacturer's work procedure, replace* if necessary.	● USA: 125K only: Audi Q7 3.0L TDI, A3 2.0L TDI only ● Canada: 200,000 km only: Audi Q7 3.0L TDI, A3 2.0L TDI only		
Plenum Panel – remove cover for plenum panel to check water drain and clean if necessary		● except A3, Audi Q5	● except A3, Audi Q5
Tires and Spare Wheel – check for wear and damage, check tire pressure, reset Tire Pressure Monitoring System (TPMS)	●		
– check for wear and damage, check tire pressure and renewal date of tire repair set (where applicable), reset Tire Pressure Monitoring System (TPMS)		●	●
Tires – rotate, reset TPMS	● S5K only		
Wiper Blades – check condition and replace if necessary	●	●	●
Wiper/Washer/Headlight Washer – check adjustment and function, add fluid if necessary	●	●	●
Lights – check all lights, check headlight adjustment		● A8 only	● A3, A6, S6, A8 only
Lights – check all lights via instrument cluster. Check license plate light from the rear of the vehicle			● Audi Q7, A4, S4, Audi Q5, TT, A5, S5, R8 only
Interior Lights – check all interior lights, glove box illumination, control lights and MMI (if applicable)			●
Doors – lubricate doors, check straps and hood latch		● A8 only	● Except A8
Rear Lid Hinges – lubricate		● A8 only	● A8 only
Service Reminder Display – reset	●	●	●
Horn – check function		●	●
Brake System – check for damage, leaks, pad thickness, fluid level	●	●	●
Brake Discs – check thickness			●
Exhaust System – check for damage, leaks		●	●
Front and Rear Axle – check for excessive play, check dust seals on ball joints and tie rod ends		● A3, A6, S6, A8 only	●
Drive Shaft Boots – check		●	●
Automatic Transmission and Final Drive – check for leaks		●	●
Manual Transmission and Final Drive – check for leaks		●	●
Continuously Variable Transmission (multitronic) – change ATF			●
Haldex Clutch – change oil			● A3, TT only
DSG/S Tronic – change oil and replace filter element			● A3, TT only
– change oil			● S4, S5 only
Underbody – check for damage and leaks		●	●
Road Test – check braking, kick-down, steering, electrical, heating and ventilation systems, air conditioning, ASL Automatic Shift Lock, power accessories and reset driver information display		●	●

Timing Belt – replace at 110K miles (175,000 km) on Audi TTS or 130K miles (205,000 km) on Audi A3 2.0L TDI only. Check condition of timing belt tensioning system, dampening pulleys, and idler pulleys and replace if necessary.

Brake Fluid – replace every 2 years regardless of mileage.

Cloth Top – check function and rollover protection every 2 years regardless of mileage (Audi A5/S5 Cabriolet only).

*If DPF replacement is not necessary, perform check every 20,000 miles (30,000 km) thereafter until replacement becomes necessary. Subsequent DPF replacement interval is a minimum of 120,000 miles (200,000 km), thereafter.

Audi of America, Inc. believes the information and specifications to be correct at the time of printing. Specifications, maintenance intervals, standard features and options subject to change without notice.

Revised 12/10