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23 January 2014

Francis Tay
 Senior Investigation Officer
 Traffic Police Department
 Singapore Police Force
 10 Ubi Avenue 3
 Singapore 408865
 Tel: 6547 6229
 Fax: 6547 6352

Court No. 37
Case No:
Exhibit: P82
Date: 08/01/14
District Judge
Magistrate:

Dear Mr Tay

Re: Clarification of YM8972C Report

We refer to your request dated 04 December 2013 and conducted a re-test of the brake system on 20.01.2014.

1. Annex A - Brake test report of YM8972C carried out on 23.11.2012 by the driver/owner under self request test to check on the brake efficiency on a brake roller tester.

The brake test results are as follows:

	Weight	L(kg)	R(Kg)	%
a. Front brake efficiency –	4010	1080	1059	53%
b. Rear brake efficiency –	4789	442	487	19%
c. Handbrake efficiency –		292	323	12%

Overall result = Failed ($53\% + 19\%/2 \text{ axle} = 36\%$) Passing criteria must be 50% and above.

Based on the test results the rear brake efficiency was low could be due to the following factors:

- Tire condition (both rear tires were bald)
- Improper testing (air brake vehicle easily caused wheel locked during brake test and jump out of brake roller that captured the wrong brake force readings. Three repeats test should be carried out in order to perform a proper test and capture the actual brake force readings if the first and second test had failed)
- Failed to depress brake pedal fully





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As the brake test is requested by the car owner/driver under self request and test could be done by them self, no independence party to witness the test being carry out for the actual purpose.

From the brake test results, the front brake system is effective and able to achieve 53%. If the vehicle travelled at 30 to 40 km/h as claimed, the front brake alone shall be able to stop the vehicle.

Rear axle both left and right brake force recorded a balance and consistent readings of 487kg and 442kg respectively. This indicates no leakage on the wheel brake cylinder and no brake shoe adjustment problem. The only possibility is due to the bald tires, insufficient pressure applied on the brake pedal during the test, improper testing and capturing of the brake readings and failed to carry out re-test. To my observation the low brake force is likely caused by the bald tires.

2. Annex B - Example of a defective rear right brake captured by brake roller tester on a similar vehicle model

YM7173Z, Make and Model Nissan/PKC37B tested on 05/08/2013 on a brake roller tester

	Weight	L(kg)	R(Kg)	%
a. Front brake efficiency –	4279	1089	1131	51%
b. Rear brake efficiency –	5448	932	57	18%
c. Handbrake efficiency –		1319	59	29%

Overall result = Failed (51% + 18%/2 axle = 35%) Passing criteria must be 50% and above.

The rear right wheel brake showing extremely low brake force of 57kg indicating a leakage or faulty brake.

3. Annex C - Brake test report of YM8972C carried out on 20.01.2014 in Sin Ming Centre by the inspector under self request test and witness by us (on behalf of Traffic Police)





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The brake test results are as follows:

	Weight	L(kg)	R(Kg)	%
a. Front brake efficiency –	3863	1156	1149	59%
b. Rear brake efficiency –	4786	1249	1529	58%
c. Handbrake efficiency –		581	784	28%

Overall result = Passed (59% + 58%/2 axle = 58.5%) Passing criteria must be 50% and above.

Based on the test results the rear brake efficiency was about 58% and the brake force was 1249kg and 1529kg respectively. Both rear tires tread were in serviceable condition.

4. My comments of Mr Koay report as requested by Traffic Police.

- a. Refer to 3.11 - Job No JJ092348 show that a road test on the brake was conducted to the vehicle on 5 November 2012 by Nissan Truck agent Tan Chong Industrial Machinery Pte Ltd (TCIM) and was certified the vehicle brake was serviceable.

The accident happened on 06 November 2012 at about 6.27pm and the driver claimed the brake faulty.

Static brake test and mechanical assessment had been carried out on 20 November 2012. Both the service brake and hand brake were in serviceable condition, neither faulty part nor leakage had been found on mechanical brake system and air brake system.

Carry out a road test on a vehicle brake is a simple and real test that could simulate the actual road condition. It is widely use by work shop mechanic, technician and engineer to determine brake efficiency all over the world. The brake efficiency can be determined by the stopping distance according to the speed travelled and the brake pulling left or right. A brake Taplay meter place in a vehicle could also measure the distance and brake efficiency in percentage. Taplay meter test is approved by LTA's and used by all inspection centres.

The only different when using a roller brake tester is;

Test individual axle wheel brake on two rotating rollers and measure the brake force according to the individual axle weight. The summation of Left and Right brake force and divided over the individual axle weight equal to the brake efficiency in percentage.

LTA's approved the use of roller brake tester mainly for convenient, save space, fast turn-around-time and capturing of individual brake force.





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- b. Refer to 3.19 – It was also found that its air pressure dip was more rapid than normal, suggesting either some leakage or a related deficiency in the system.

It is normal for air pressure to dip from 7.5 to 5 (x100kpa) with 3 to 5 application of the brake. The normal air pressure is cut off at 10 (x100kpa) and allowing at least 6 to 10 application of the brake in order for the air pressure to dip from 10 to 5 (x100kpa).

The air brake chamber is designed in such manner that certain amount of the air pressure will be released for each brake application so that the push rod able to return. Mr Kuay mistakenly there is an air leakage or a related deficiency in the system.

- c. Refer to 3.30 – Suggested that the vehicle brakes were actually ineffective from 06 to 23 November 2012.

My question is why the ineffective brake was not detected if the claimed of faulty brake by the driver after the accident is true.

1. During the road test carried out by TCiM on 05 November 2012.
 2. Assessment carried out by STA investigation team on 20 November 2012
 3. The driver who drove the same vehicle to STA inspection centre on 23 November 2012 and return safely.
- d. Refer to 3.32 – Suggested due to overheating of the rear brake drum that caused the brake failure. The overheating problem normally attributed by incorrect brakes adjustment.

No sign and symptom to suggest the brake failure is due to overheating.

1. No brake drag reported during road test carried out by TCiM
2. No brake drag reported during assessment conducted on 20 November 2012.
3. Brake test report conducted on 23 November 2012 by STA inspection centre showed both rear wheel brakes free from brake drag.
4. Both drivers drove the car on the accident day (06 Nov 2012) and conduct brake test (23 Nov 2012) did not complaint of overheating problem. (brake drag smell, Brake drag, smoke emitting from the wheel brake)

Overheating of brake drum and brake shoes only occurred when;

1. Prolong brake drag
2. Constantly applying brake when travelling down a long steep hill.

Brake will losses it efficiency when overheating occurred. Braking efficiency shall be improved and back to normal once the overheating subsided.





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- e. Refer to 3.33 – The brake linings also appear to exhibit signs of fading attributed by overheating. (photos 48 to 50)

The brake linings appeared new and thick, signs of normal wear and tear with no severe overheating marks.

- f. Refer to 3.34 – Brake fade would cause loss or inefficient braking.

No tell tale sign to suggest overheating occurred before the accident. On 06.Nov 2012 at about 6 pm the vehicle left the company premises in Pandan Loop heading towards PIE and Bukit Panjang. The vehicle only travelled for about 30 minutes, very unlikely will cause overheating of the brake even under heavy traffic and used a lot of brakes as claimed by the driver.

Brake fade can occur after repeated or sustained application of the brakes, especially in high load or high speed conditions and occur most often during high performance driving or when going down a long, steep hill.

The reduction of friction termed brake fade is caused when the temperature reaches the "kneepoint" on the temperature-friction curve and gas builds up between disc and pad.

Annex A – YM8972C Brake test results – On 23.11.2012

Annex B – YM7173Z Brake test results – On 05.08.2013

Annex C – YM8972C Brake test results – On 20.01.2014

Annex D – Brake fade

Thank you

Yours faithfully

Tan Jiat Shee
Senior Automotive Engineer
HP: 90238787



7 SEP. 2013 10:49

NO. 163

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ANNEX A

VEHICLE INSPECTION FORM

VEHICLE NO. YM8972C		MILEAGE 0		REP NO. LK121123053																													
TYPE OF INSPECTION Self-Request First Inspection		DATE OF REGISTRATION 29/08/2008		MOTOR NO. -																													
DATE OF INSPECTION 23/11/2012		BRAKES <table border="1"> <thead> <tr> <th></th> <th>WPA</th> <th>LPA</th> <th>RPA</th> <th>SPD</th> <th>WPA</th> <th>RPA</th> </tr> </thead> <tbody> <tr> <td>15</td> <td>4010</td> <td>1000</td> <td>1059</td> <td>53</td> <td>1</td> <td>1</td> </tr> <tr> <td>20</td> <td>4763</td> <td>442</td> <td>467</td> <td>19</td> <td>1</td> <td>1</td> </tr> <tr> <td>25</td> <td></td> <td>292</td> <td>323</td> <td>12</td> <td></td> <td></td> </tr> </tbody> </table>			WPA	LPA	RPA	SPD	WPA	RPA	15	4010	1000	1059	53	1	1	20	4763	442	467	19	1	1	25		292	323	12			ENGINE NO. J08EUB10845	
	WPA			LPA	RPA	SPD	WPA	RPA																									
15	4010			1000	1059	53	1	1																									
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25		292	323	12																													
MAKE OF VEHICLE NISSAN		CHASSIS NO. PKC37RN00359																															
OVERALL RESULT Failed		SIDE SLIP - info		DIESEL SMOKE -																													
MISSION TEST <table border="1"> <thead> <tr> <th>NO</th> <th>CO %</th> <th>CO2 %</th> <th>U2 %</th> <th>NOx</th> <th>Lambda</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		NO	CO %	CO2 %	U2 %	NOx	Lambda	1	-	-	-	-	-	HEADLIGHT <table border="1"> <thead> <tr> <th></th> <th>-Kcd</th> <th>-H</th> <th>-V</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-Kcd</td> <td>-H</td> <td>-V</td> </tr> <tr> <td>2</td> <td>-Kcd</td> <td>-H</td> <td>-V</td> </tr> <tr> <td>3</td> <td>-Kcd</td> <td>-H</td> <td>-V</td> </tr> </tbody> </table>			-Kcd	-H	-V	1	-Kcd	-H	-V	2	-Kcd	-H	-V	3	-Kcd	-H	-V	SOUND LEVEL - d(A)	
NO	CO %	CO2 %	U2 %	NOx	Lambda																												
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1	-Kcd	-H	-V																														
2	-Kcd	-H	-V																														
3	-Kcd	-H	-V																														
WJ METER SPD 0		SPEEDOMETER -		SPEED LIMITER -																													
SPEED WARNING DEVICE -		TEST CERTIFICATE NO. -		Inspector's Signature -																													
AGENCY CARRIAGE INSPECTION (P-PASS M-MARGINAL F-FAIL)																																	

UNO CARRIAGE INSPECTION (P-PASS M-MARGINAL F-FAIL)

NO. _____
 ISSUED THAT THE "VEHICLE UNDER INSPECTION"
 (ER WAS PASTED ON THE VEHICLE.
 1) Validity of reinspection is 3 months from date of last inspection.

SIGNATURE

LEGENDS: P-PASS P-FAIL



of Singapore Test Services

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VEHICLE INSPECTION FORM

VEHICLE NO.		MILEAGE		REF. NO.	
First Inspection - 01		18/09/2007			
TYPE OF INSPECTION		DATE OF REGISTRATION		MOTOR NO.	
05/08/2013				J08EUD10411	
DATE OF INSPECTION		BRKES		ENGINE NO.	
05/08/2013		4273		PKC37BN00131	
MAKE OF VEHICLE		5448		CHASSIS NO.	
NISSAN		930			
OVERALL RESULT		1519		DIESEL SMOKE	
Failed		57		ACIDITY LEVEL	
SIDE SIGHT		16		L 49 kCd	
		27		H 41 kCd	
EMISSION TEST				F R 42 kCd	
				H 41 kCd	
SPEEDOMETER		SPEED LIMITER		TEST CERTIFICATE NO.	
SPEED WARNING DEVICE				Inspection Signature	

ABOVE CARRIAGE INSPECTION (P-PASS M-MARGINAL F-FAIL)

(F)

Box Van with Power Tailgate

UNDER CARRIAGE INSPECTION (P-PASS M-MARGINAL F-FAIL)

(P)

NRIC NO. W0707 mng huy
68424198

WITNESSED THAT THE "VEHICLE UNDER INSPECTION" STICKER WAS PASTED ON THE VEHICLE.

SIGNATURE _____

Wang-ming-hui

NOTE: 1) Validity of reinspection is 3 months from date of first inspection.

LEGENDS: P-PASS F-FAIL



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BNH/C

VEHICLE INSPECTION FORM

VEHICLE NO. YM8072C		MILEAGE 99519		REF NO. LB140120070																																				
TYPE OF INSPECTION Self-Request First Inspection - 01		DATE OF REGISTRATION 29/08/2008		MOTOR NO. -																																				
DATE OF INSPECTION 20/01/2014		BRAKES <table border="1"> <thead> <tr> <th></th> <th>WFO</th> <th>LOD</th> <th>ROD</th> <th>ROD</th> <th>ROD</th> <th>ROD</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>3053</td> <td>1156</td> <td>1149</td> <td>99</td> <td>0</td> <td>1</td> </tr> <tr> <td>1P</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>20</td> <td>4706</td> <td>1249</td> <td>1529</td> <td>58</td> <td>6</td> <td>0</td> </tr> <tr> <td>2P</td> <td></td> <td>581</td> <td>794</td> <td>28</td> <td>4</td> <td></td> </tr> </tbody> </table>			WFO	LOD	ROD	ROD	ROD	ROD	10	3053	1156	1149	99	0	1	1P							20	4706	1249	1529	58	6	0	2P		581	794	28	4		ENGINE NO. J08EUB10845	
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MAKE OF VEHICLE NISSAN		CHASSIS NO. PKC37BN00359		DIESEL SMOKE -																																				
OVERALL RESULT Passed		SIDE SLIP - m/km		SOUND LEVEL - dB(A)																																				
MISSION TEST				HEADLIGHT																																				
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**OVER CARRIAGE INSPECTION (P-PASS M-MARGINAL F-FAIL)

UNDER CARRIAGE INSPECTION (P-PASS M-MARGINAL F-FAIL)

REC NO.

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SIGNATURE

TE: 1) Validity of reinspection is 3 months from date of first inspection.

LEGENDS: P-PASS F-FAIL



Event before and after accident - YM8972C					
Date	Time	Mileage	Job Scope	Action	Job Done
11/4/2012	1335	99235	Breakdown - Clutch Carry out clutch	Engage towing service	Replace flywheel, clutch disc and bearing
11/5/2012	1600	99235	Maintenance servicing	Sent vehicle back to havi	Replace engine oil, oil filter, fuel filter and drain plug and brake test
11/6/2012	6.25pm		Accident Happened along Clementi Avenue 6 and 3 pedestrians		
11/10/2012			General Insurance report (GIA) and Traffic accident report		
11/20/2012			TP say ggood svc cond		
11/22/2012		99495	Vehicle was towed back To TCIM from police Headqaurter	Engage towing service	
11/23/2012			Kevin from Surveyor firm request	Kelvin accompany Tan Kim Tow (Both inside same truck) to Inspection Centre	
			Tan Kim Tow to drive vehicle to carry		
			out brake test at STA (Boon Lay)		
11/24/2016			Submit Insurance claim		Carry out accident claim
11/26/2016			Battery weak and air leak	Replace battery, overhaul footbrake valve and rear brake chamber	Battery weak and air leaks due to long parking at traffic police compound (6/11/2012 to 22/11/2017) -16 days
12/12/2016 (Estimate)			Accident repair completed	Sent vehicle back to havi	
1/3/2013		99519	Maintenance Service		Engine oil change, overhaul front brake, replace lining and oil seal

in between who drove before Sun

- STA Inspection report will indicate the mileage

TP amended the TP report to be.....ineffective (1 year 1 month later)

1/20/2014