

Your Ref: TP/IP/40513/2019
Our Ref : CI/TPD19008257/P

13th September 2019

Fatal Accident Investigation Team

Traffic Police Department
Singapore Police Force
10 Ubi Avenue 3
Singapore 408865

MECHANICAL INSPECTION REPORT OF MOTOR LORRY XD 2090X

1. I refer to your request on 8th July 2019 to conduct a physical inspection of a Motor lorry bearing registration number XD 2090X (herein referred to as "**Motor Lorry**"), which was involved in a fatal road traffic accident on 28th June 2019.
2. The objective of this inspection is to determine if there was any possible mechanical failure to the Motor Lorry that may have contributed to the accident.
3. Following the request, I had carried out a physical inspection of the Motor Lorry on 2th September 2019 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. I now set out below my observations and comments with respect to this inspection.

General Condition


4. The mileage of the Motor Lorry was not recorded due to the damage to its engine and ignition system as a result of the accident.
5. The Motor Lorry was observed to have sustained extensive damages at its frontal portion. Its whole front cabin, front windscreen, front left and right door, front bumper, its ignition system, engine system and steering system were damaged as a result of the accident at the time of my inspection.

Tyres and Wheel Rims

6. The 2 front tyres and 8 rear tyres of the Motor Lorry were observed to be in serviceable condition and sufficiently inflated for vehicular operation. I did not find any tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 10 tyres. The tyre brand, tyre size and remaining tread depth of the 10 tyres of the Motor Lorry were recorded as follows:-

Austone 295/80 R22.5 (11.8mm)

Aufine 295/80 R22.5 (11.1mm)

<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	
— REAR —		— FRONT — 
<input type="text"/>	<input type="text"/>	
<input type="text"/>	<input type="text"/>	<input type="text"/>

Austone 295/80 R22.5 (11.4mm)

Austone 295/80 R22.5 (6.2mm)

7. The 10 tyres were observed to be wrapped around standard steel wheel rims that were found to be without any damage. See photo 1 – 10 below.



Photo 1 shows a general view of the front body of the Motor Lorry at the time of my inspection. The Motor Lorry was observed to have sustained extensive damages at its frontal portion. Its whole front cabin, front windscreen, front left and right door, front bumper, its ignition system, engine system and steering system were damaged as a result of the accident



Photo 2 shows a close up view of the front body of the Motor Lorry at the time of my inspection. Its whole front cabin, front windscreen (red circle), front bumper, its ignition system and engine system (yellow circle) were damaged as a result of the accident



Photo 3 shows a close up view of the front right body of the Motor Lorry at the time of my inspection. Its whole front cabin, front right door (circled) and steering system (yellow arrow) were damaged as a result of the accident



Photo 4 shows a close up view of the front left body of the Motor Lorry at the time of my inspection. Its whole front cabin, front left door (circled) were damaged as a result of the accident



Photo 5 shows a general view of the Motor Lorry's rear body at the time of my inspection. The rear portion of the Motor Lorry appears be unaffected to the accident.



Photo 6 shows the condition of the front right tyre of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 6.2 mm. The tyre, which was wrapped around standard steel wheel rim, was also observed to be sufficiently inflated for vehicular operation. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 10 tyres that were fitted on the Motor Lorry.



Photo 7 shows the condition of the rear right tyre of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 11.4mm.



Photo 8 shows the condition of the rear left tyres of the Motor Lorry, which was observed to be in serviceable condition with remaining tread depth of approximately 11.8mm. The tyres, which were wrapped around standard steel wheel rim, were also observed to be sufficiently inflated for vehicular operation. There was also no damage found on all 10 steel wheel rims of the Motor Lorry.



Photo 9 shows the condition of the front left tyres of the Motor Lorry, which were observed to be in serviceable condition with remaining tread depth of approximately 11.1mm.

Engine Compartment & Operating Fluids

8. The examination of the Motor Lorry's engine compartment beneath the lorry's cabin was unable to be conducted due to the extensive damage sustained to the cabin of the Motor Lorry. (Unable to be lifted) See photo 10 below.



Photo 10 shows the Motor Lorry's deformed front cabin as a result of the accident. (Unable to be lifted)

Steering System & Braking System

9. Static tests on the braking and steering system of the Motor Lorry was not conducted due to the damage sustained to the Motor Lorry's cabin as a result of the accident (unable to be tested)
10. My visual examination of the various steering components which had included the tie rods, tie rod ends and ball joints had revealed that these components were all intact. However the steering box was observed to be damaged as a result of the accident. See photo 11 - 18 below.



Photo 11 shows the brake pipe (arrowed) at the rear right wheel of the Motor Lorry. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Lorry. My static tests of the Motor Lorry's braking system, along with my visual examination of the various mechanical components in the braking system, had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Lorry was likely to be in serviceable condition at the material time of accident.



Photo 12 shows the brake pipe (arrowed) at the rear left wheel of the Motor Lorry. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Lorry. My static tests of the Motor Lorry's braking system, along with my visual examination of the various mechanical components in the braking system, had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Lorry was likely to be in serviceable condition at the material time of accident.



Photo 13 shows the brake pipe (arrowed) at the front right wheel of the Motor Lorry. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Lorry. My static tests of the Motor Lorry's braking system, along with my visual examination of the various mechanical components in the braking system, had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Lorry was likely to be in serviceable condition at the material time of accident.



Photo 14 shows the brake pipe (arrowed) at the front left wheel of the Motor Lorry. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Lorry. My static tests of the Motor Lorry's braking system, along with my visual examination of the various mechanical components in the braking system had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Lorry was likely to be in serviceable condition at the material time of accident.



Photo 15 shows the air brake cylinder (arrowed) at the undercarriage of the Motor Lorry. I did not observe any leakage of air brake fluid at the time of my inspection of the Motor Lorry. My static tests of the Motor Lorry's braking system, along with my visual examination of the various mechanical components in the braking system had indicated that there was no internal leakage of pressure/vacuum. Hence the braking system of the Motor Lorry was likely to be in serviceable condition at the material time of accident.



Photo 16 shows the various undercarriage components at the front right wheel of the Motor Lorry, in particular the steering tie rod end (arrowed). The various steering components were all found to be intact, suggesting that the steering system of the Motor Lorry was likely to be in serviceable condition at the material time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.



Photo 17 shows the various undercarriage components at the front left wheel of the Motor Lorry, in particular the steering tie rod end (arrowed). The various undercarriage components of the Motor Lorry were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.



Photo 18 shows the steering box component (circled) at the undercarriage of the Motor Lorry was found to be damaged as a result of the accident.

Electronic Safety / Warning Indicators

11. The Motor Lorry automatic self-test of the functionality of its various electronic operating systems was not conducted due to the damage to its engine and ignition system as a result of the accident.(unable to be started)

Operational Behaviour of the Motor Lorry

12. Operational test to primarily determine whether there was any abnormality to the engine system, transmission system and braking system of the Motor Car could not be conducted given the extent of damage that it had sustained (engine and ignition system damaged).

Conclusion

13. For this particular case, I was unable to determine whether there was any possible mechanical failure to the Motor Car that may have contributed to the accident. The extent of damage that it had sustained had prevented me from carrying out any operational test(s) and/or static test(s) to its engine system, transmission system, steering system, braking system and suspension system.
14. The 2 front tyres and 8 rear tyres fitted on the Motor Lorry were also found to be in serviceable condition. I did not find any tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 10 tyres. The 10 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 6.2 mm – 11.8mm.

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