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28th December 2022

SSSGT Koh Xiu Ming

Assistant Investigation Officer
General Investigation Squad 1
Woodlands Division
Singapore Police Force

MECHANICAL INSPECTION REPORT OF MOTOR LORRY YN 7315B

1. We refer to your request on 24th October 2022 to conduct a physical inspection of a motor Lorry bearing registration number YN 7315B (herein referred to as "**Motor Lorry**"), which was involved in a road traffic accident.
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, we had carried out a physical inspection of the Motor Lorry on 8th December 2022 at the premises of Woodlands Police Division Headquarters, 1 Woodlands Street 12, Singapore 738622. We now set out below our observations and comments with respect to this inspection.

General Condition

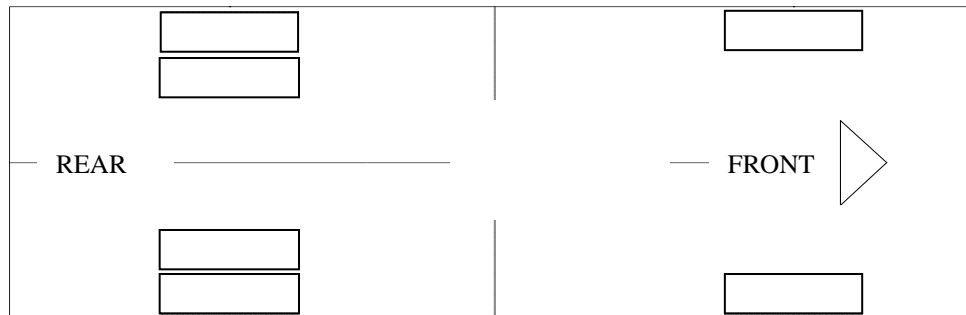
4. The mileage of the Motor Lorry at the time of my inspection was not recorded as the dashboard of the Motor Lorry was damaged as a result of the accident.
5. The Motor Lorry was observed to have sustained damages at its front and rear portion. Its front cabin, front windscreen, front bumper and front body panel, its both doors as well as its rear left bumper and its rear left brake lamp as a result of the accident. The Supplemental Restraint System (SRS) was activated as a result of the accident.

Tyres and Wheel Rims

6. The both front tyres and wheel rims was observed to be damaged with cut marks on the sidewall of the both front tyres as a result of the accident. However, the rear 4 tyres and wheel rims of the Motor Lorry were observed to be in serviceable condition and sufficiently inflated for vehicular operation. The tyre brand, tyre size and remaining tread depth of the 6 tyres of the Motor Lorry were recorded as follows:-

Bridgestone 205/70R16 (5.7mm)

Yokohama 205/70R16 (7mm) (Cut)



Bridgestone 205/70R16 (2.1mm)

Yokohama 205/70R16 (6.5mm) (Cut)

The both front tyres and wheel rims was observed to be damaged. The 4 rear tyres were observed to be wrapped around standard steel wheel rims that were found to be without any damage. See photo 1 - 17 below.



Photo 1 shows the general view of the rear portion of the Motor Lorry at the time of our inspection. The Motor Lorry was observed sustained major damages to its front and rear portion. Its front cabin, front windscreen, front bumper and front body panel, its both doors as well as its rear left body panel and its rear left brake lamp as a result of the accident. The Supplemental Restraint System (SRS) was activated as a result of the accident.



Photo 2 shows the close up view of the rear portion of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained damages to its rear left bumper (arrowed) and rear left brake lamp (circled) that was damaged as a result of the accident's impact.



Photo 3 shows a general view of the front portion of the Motor Lorry at the time of our inspection. The Motor Lorry was observed sustained major damages to its front and rear portion. Its front cabin, front windscreen, front bumper and front body panel and its both doors as a result of the accident. The Supplemental Restraint System (SRS) was activated as a result of the accident.



Photo 4 shows the close up view of the front portion of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained major damages to its dashboard (circled) that was crushed due to the accident's impact.



Photo 5 shows the close up view of the front portion of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained major damages to its front windscreen (red circle) and its front cabin (arrowed) that was crushed due to the accident's impact.

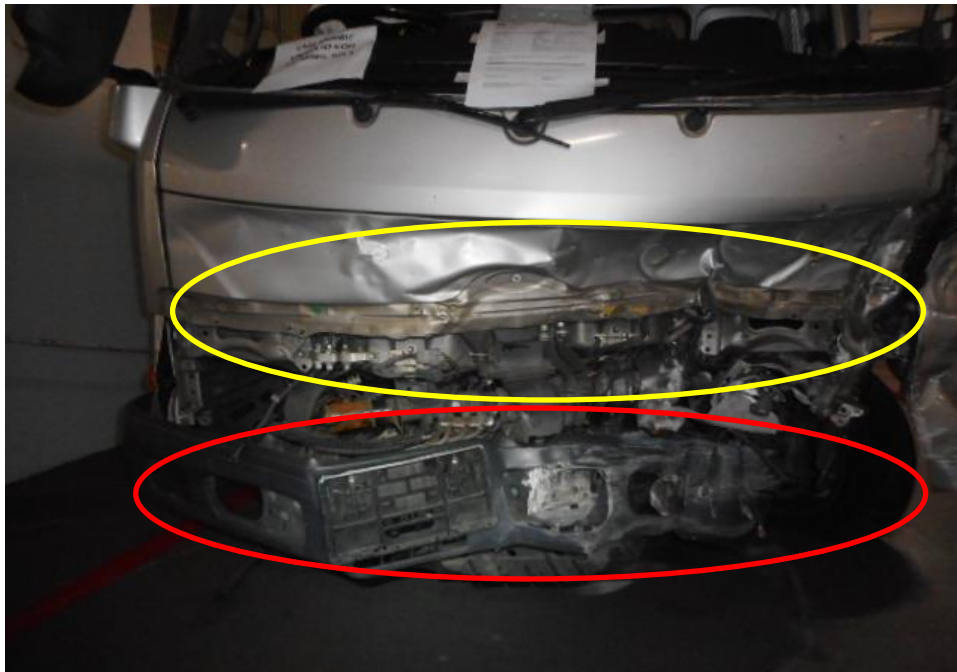


Photo 6 shows the close up view of the front portion of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained major damages to its front bumper (red circle) and its front body panel (yellow circle) that was damaged as a result of the accident's impact.

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Photo 7 shows the close up view of the right door of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained damages to its right door (circled) as a result of the accident.



Photo 8 shows the close up view of the left door of the Motor Lorry at the time of our inspection. The Motor Lorry was observed to have sustained damages to its left door (circled) as a result of the accident.

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Photo 9 shows a general view of the Motor Lorry's right body at the time of my inspection. The right portion of the Motor Lorry was observed to have been unaffected by the accident.



Photo 10 shows a general view of the Motor Lorry's left body at the time of my inspection. The left portion of the Motor Lorry was observed to have been unaffected by the accident.



Photo 11 shows the condition of the outer side of the front right tyre of the Motor Lorry, which was observed to be in unserviceable condition with remaining tread depth of approximately 6.5mm. The steel wheel rim, was observed damage (circled) and the tyre was observed to be cut and deflated as a result of the accident.



Photo 12 shows the condition of the inner side of the front right tyre of the Motor Lorry, which was observed to be in unserviceable condition with remaining tread depth of approximately 6.5mm. The steel wheel rim, was observed damage (yellow circle) and the tyre was observed to be cut and deflated (red circle) as a result of the accident.



Photo 13 shows the condition of the outer side of the front left tyre of the Motor Lorry, which was observed to be in unserviceable condition with remaining tread depth of approximately 6.5mm. The steel wheel rim, was observed damage (circled) and the tyre was observed to be cut and deflated as a result of the accident.



Photo 14 shows the condition of the outer side of the front left tyre of the Motor Lorry, which was observed to be in unserviceable condition with remaining tread depth of approximately 6.5mm. The steel wheel rim, was observed damage (yellow circle) and the tyre was observed to be cut and deflated (red circle) as a result of the accident.

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Photo 15 shows the condition of the rear right tyres of the Motor Lorry, which were observed to be in serviceable condition with remaining, tread depth of approximately 2.1mm. The tyres, which was wrapped around standard steel wheel rim, it was observed to be sufficiently inflated for vehicular operation.



Photo 16 shows the condition of the rear left tyres of the Motor Lorry, which were observed to be in serviceable condition with remaining, tread depth of approximately 5.7mm. The tyres, which was wrapped around standard steel wheel rim, it was observed to be sufficiently inflated for vehicular operation.



Photo 17 shows the deployment of the Supplemental Restraint System (SRS) airbag in the Motor Lorry as a result of the accident.

Engine Compartment & Operating Fluids

7. Upon examination of the Motor Lorry's engine compartment, we had observed that all the parts, components and fluids could not be inspection as due to the damage induced has crushed and deformed the cabin opening mechanism of the Motor Lorry which immobilized its opening and viewing.
8. However, we were able to examine the brake fluid and its brake fluid reservoir were found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids.
9. My subsequent checks on the underside of the Motor Lorry also revealed no sign(s) or indication(s) of fluid leak and/or fluid stain(s). Visually, the various undercarriage components of the Motor Lorry were all observed to be intact and without any visible damage. See photo 18 - 20 below.



Photo 18 shows the induced damage to the front cabin opening mechanism (arrowed) of the Motor Lorry's which had immobilised the opening and viewing of the various parts and components inside the engine compartment a result of the accident.

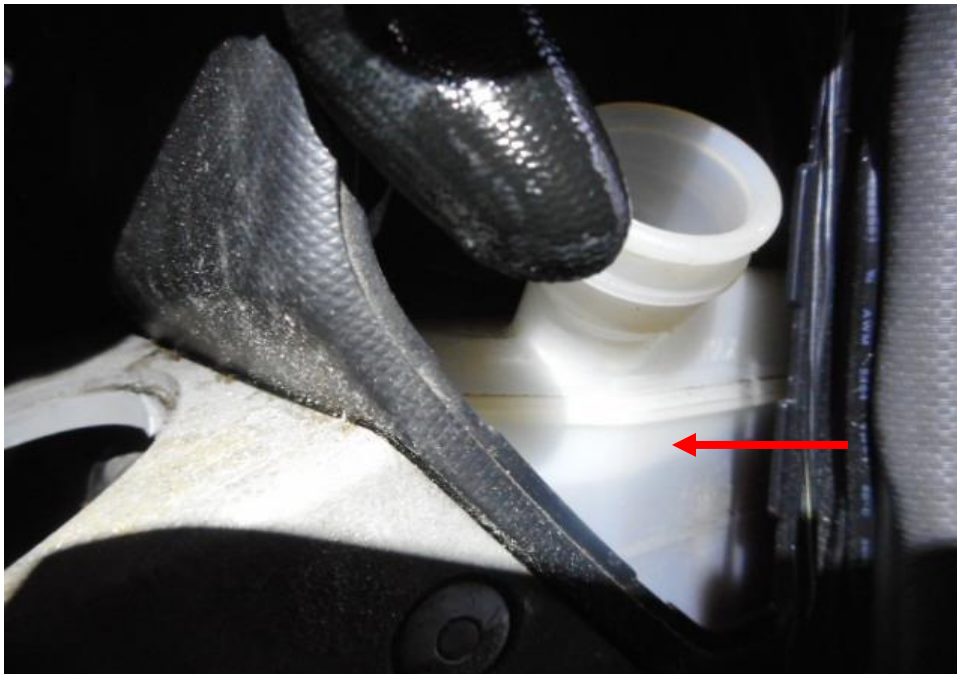


Photo 19 shows the brake fluid reservoir of the Motor Lorry at the time of my inspection. The brake fluid was observed to be of sufficient level (arrowed) and without any visible contamination.



Photo 20 shows the undercarriage of the Motor Lorry, at the area where the engine housing and transmission housing are located. I did not find any sign(s) or indication(s) of fluid leak and/or fluid stain(s) on the underside of the Motor Lorry.

Steering System & Braking System

10. Static braking and steering tests was not conducted on the Motor Lorry as the dashboard in the cabin had sustain damages as the result of the accident. Our visual inspection of the mechanical components of the Motor Lorry's observed that its undercarriage steering and braking system components was intact.
11. My visual examination of the various steering and braking components which had included the rack and pinion, tie rods, tie rod ends and ball joints, brake hoses and brake pipes had revealed that these components were all generally intact. However, its steering shaft was observed to be damaged as a result of the accident. See photo 21 - 27 below.

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Photo 21 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.

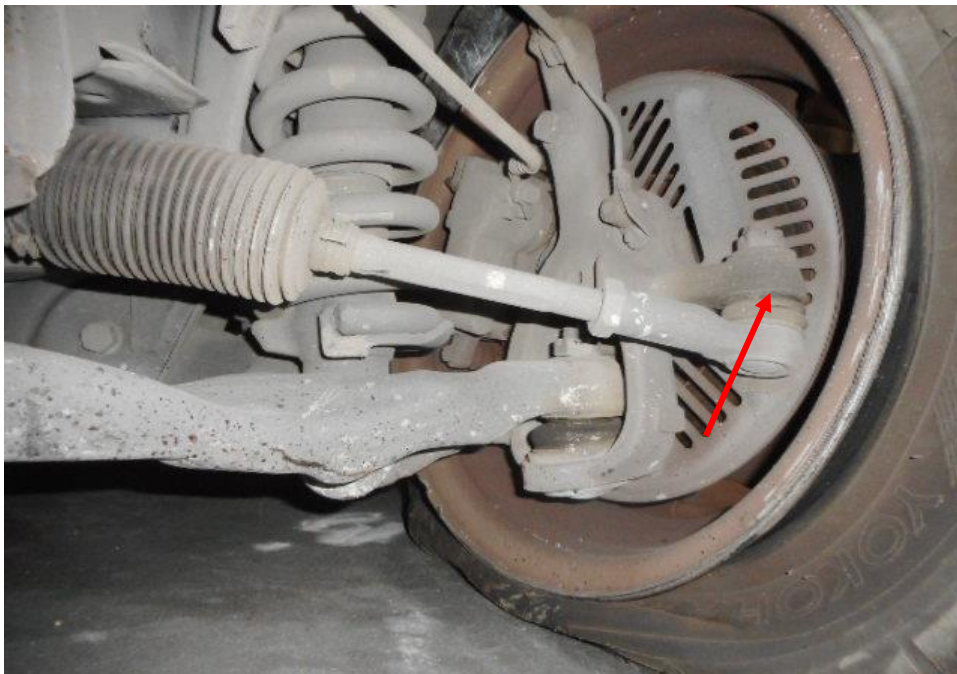


Photo 22 shows the various undercarriage components at the front left wheel of the Motor Lorry, in particular the steering tie rod end (arrowed). The various undercarriage components of the Motor Lorry were all found to be intact without any visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.

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Photo 23 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 visual examination of the various mechanical components in the braking system were all found to be intact without any visible damage.



Photo 24 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 visual examination of the various mechanical components in the braking system were all found to be intact without any visible damage.

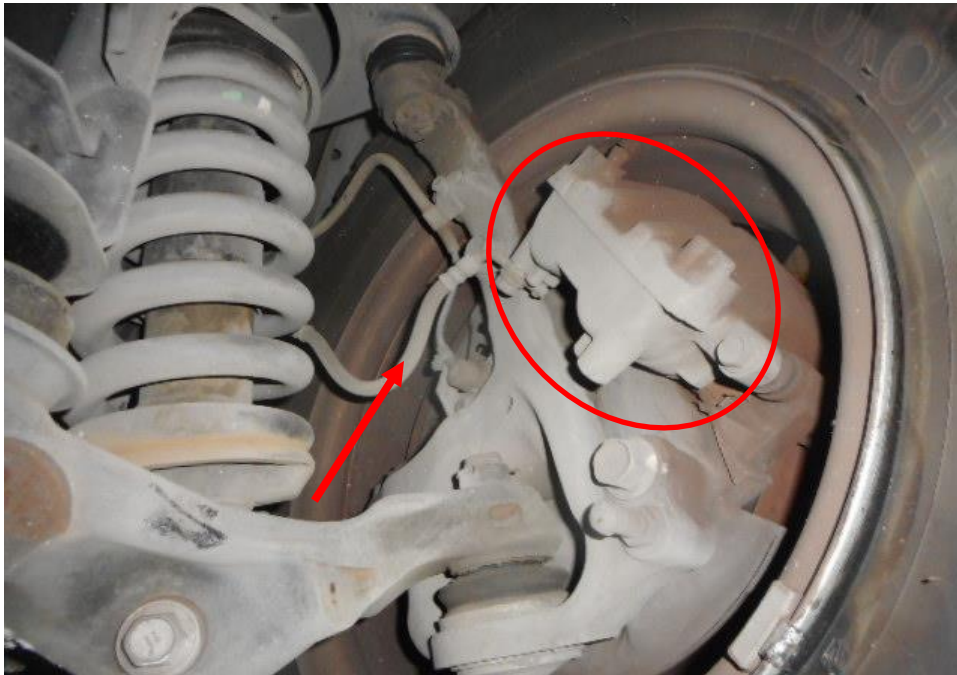


Photo 25 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Lorry. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled) had revealed all to be intact and without visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.

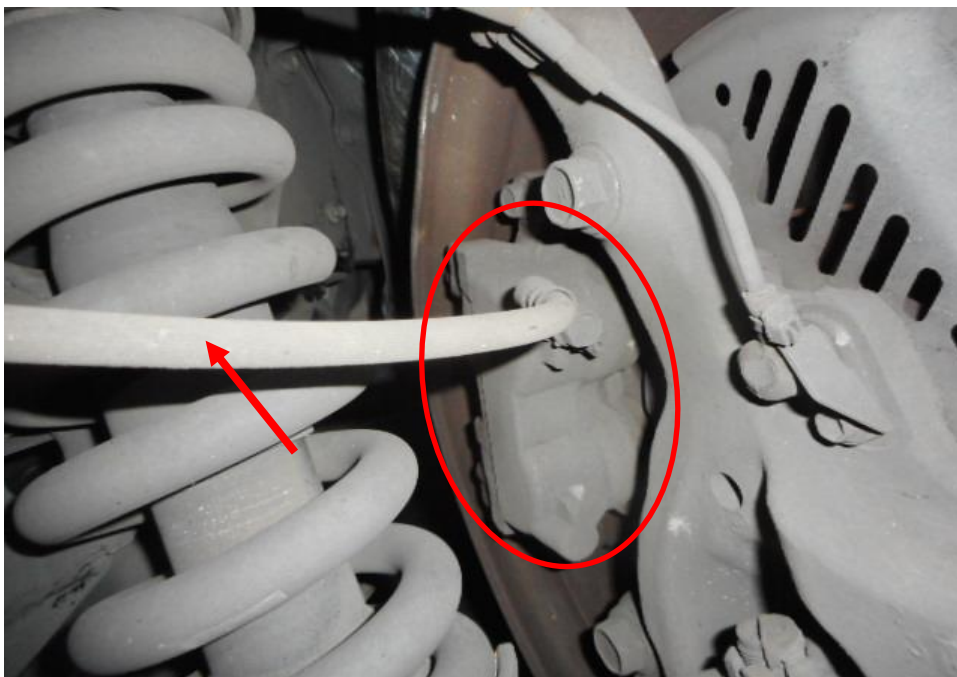


Photo 26 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Lorry. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled) had revealed all to be intact and without visible damage. There was also no sign of fluid stain(s) observed on the various undercarriage components.



Photo 27 shows the various undercarriage components of the Motor Lorry, in particular the steering shaft (arrowed) was observed to be broken off as a result of the accident.

Electronic Safety / Warning Indicators

12. The static test of the Motor Lorry electronic safety system could not be inspected as the instrument cluster was damaged due to the induce impact from the accident.

Seat Belts

13. The front right, centre and left seat belt were able to be fastened securely into the respective pre-tensioners that were fitted at the sides of each seat. However, we were unable to tell if the seat belt was worn at the material time as the seat belt pre-tensioners that were fitted at the side of the right and left seat was not activated upon the material time of accident and the centre seat belt was not fitted with a seat belt pre-tensioner. See photos 28 – 30 below

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Photo 28 shows that the seat belt on the right seat was able to be fastened securely into the respective pre-tensioners that were fitted at the sides of each seat



Photo 29 shows that the seat belt on the centre seat was able to be fastened securely into the respective pre-tensioners that were fitted at the sides of each seat



Photo 30 shows that the seat belt on the left seat was able to be fastened securely into the respective pre-tensioners that were fitted at the sides of each seat.

Operational Behaviour of the Motor Lorry

14. An operational test to primarily determine whether there was any abnormality to the engine system, transmission system and braking system of the Motor Lorry could not be conducted given the dashboard and cabin of the Motor Lorry was damaged as a result of the accident.

Conclusion

15. For this particular case, I was unable to determine whether there was any possible mechanical failure to the Motor Lorry 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.
16. In general our visual inspection of the mechanical components of the Motor Lorry's braking system appears to be intact and was not damaged by the accident.

17. The both front tyres and wheel rims was observed to be damaged with cut marks on the sidewall of the both front tyres as a result of the accident with remaining tread depth of approximately 6.5mm to 7mm. However, the rear 4 tyres and wheel rims of the Motor Lorry were observed to be in serviceable condition and sufficiently inflated for vehicular operation with remaining tread depth of approximately 2.1mm to 5.7mm.



Sherwin Beh,
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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