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Your Ref: TP/IP/21603/2021 19th May 2021
Our Ref : CI/TPD21005758/P

General Investigation Team
Traffic Police Department
Singapore Police Force
10 Ubi Avenue 3
Singapore 408865

MECHANICAL INSPECTION REPORT OF TOW-TRUCK GT 7606T

1. I refer to your request on 11th May 2021 to conduct a physical inspection of a Tow-Truck bearing registration number GT 7606T (herein referred to as "**Tow-Truck**"), which was involved in a road traffic accident on 29th April 2021

2. The objective of this inspection is to determine if there was any possible mechanical failure to the Tow-Truck that may have contributed to the accident.

3. Following the request, I had carried out a physical inspection of the Tow-Truck on 17th March 2021 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.

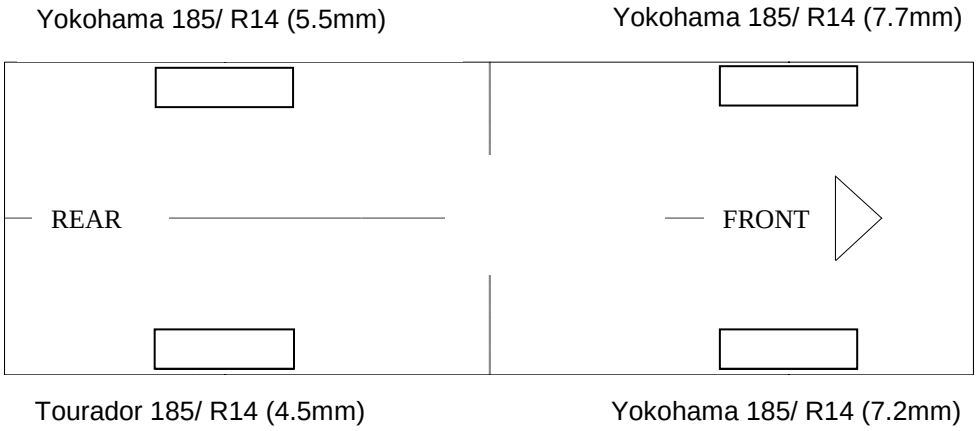
General Condition

4. The mileage of the Tow-Truck at the time of my inspection was not recorded.

5. The Tow-Truck appeared to have sustained damage at its frontal portion. Its front windscreen, front bumper and number plate were damage at the time of my inspection.

Tyres and Wheel Rims

6. The 4 tyres of the Tow-Truck 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 4 tyres. The tyre brand, tyre size and remaining tread depth of the 4 tyres of the Tow-Truck were recorded as follows:-



7. The 4 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 rear body of the Tow-Truck at the time of my inspection. The Tow-Truck was observed to be intact and unaffected by the accident.

Photo 2 shows a general view of the Tow-Truck's frontal portion at the time of my inspection. It appeared to have sustained damage at its frontal portion. Its front windscreen, front bumper and number plate were damage at the time of my inspection.

Photo 3 shows a close up view of the Tow-Truck's frontal portion at the time of my inspection. It appeared to have sustained damage at its frontal portion. Its front windscreen (red circle) was damage at the time of my inspection as a result of the accident.

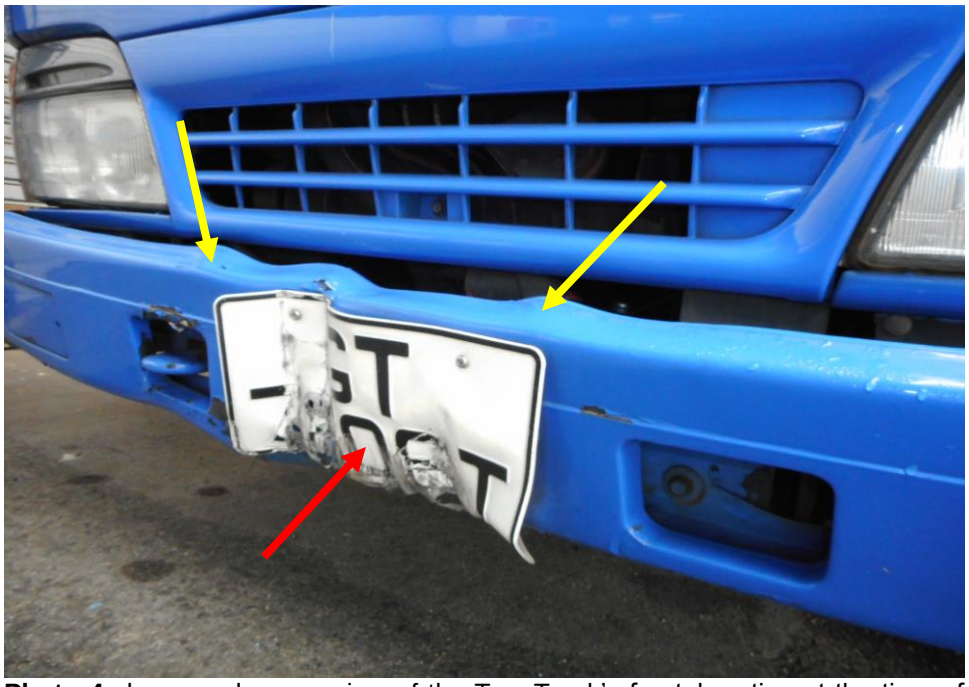


Photo 4 shows a close up view of the Tow-Truck's frontal portion at the time of my inspection. It appeared to have sustained damage at its frontal portion. Its front bumper (yellow arrow) and front number plate (red arrow) was damage at the time of my inspection as a result of the accident.

Photo 5 shows a general view of the right body of the Tow-Truck at the time of my inspection. The Tow-Truck was observed to be intact and unaffected by the accident.

Photo 6 shows a general view of the left body of the Tow-Truck at the time of my inspection. The Tow-Truck was observed to be intact and unaffected by the accident.

Photo 7 shows the condition of the front right tyre of the Tow-Truck, which was observed to be in serviceable condition with remaining tread depth of approximately 7.2mm. 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 4 tyres that were fitted on the Tow-Truck.

Photo 8 shows the condition of the rear right tyre of the Tow-Truck, which was observed to be in serviceable condition with remaining tread depth of approximately 4.5mm. The tyre, which was wrapped around standard steel wheel rim, it was observed to be sufficiently inflated for vehicular operation.

Photo 9 shows the condition of the rear left tyres of the Tow-Truck, which was observed to be in serviceable condition with remaining tread depth of approximately 5.5mm. 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 4 steel wheel rims of the Tow-Truck.

Photo 10 shows the condition of the rear right tyres of the Tow-Truck, which were observed to be in serviceable condition with remaining, tread depth of approximately 7.7mm. There was also no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 4 tyres that were fitted on the Tow-Truck.

Engine Compartment & Operating Fluids

8. Upon examination of the Tow-Truck's engine compartment, I had observed all the parts and components inside the engine compartment to be intact and unaffected by the accident. The, engine oil were found to be of sufficient level for operating purposes. Visually, there was also no contamination found to this fluid. However, the engine coolant was observed to insufficient as well as its brake fluid.

9. Further examination of the engine compartment revealed, there was no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the engine compartment of the Tow-Truck.

10. My subsequent checks on the underside of the Tow-Truck also revealed fluid leakage on the ground and old fluid stain on the oil sump. Visually, the various undercarriage components of the Tow-Truck were all observed to be intact and without any visible damage. See photo 11 – 15 below.

Photo 11 shows a general view of the Tow-Truck's engine compartment, which was accessed by lifting the front cabin of the Tow-Truck. The various parts and components inside the engine compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fresh fluid leakage and/or fluid stain within the engine compartment

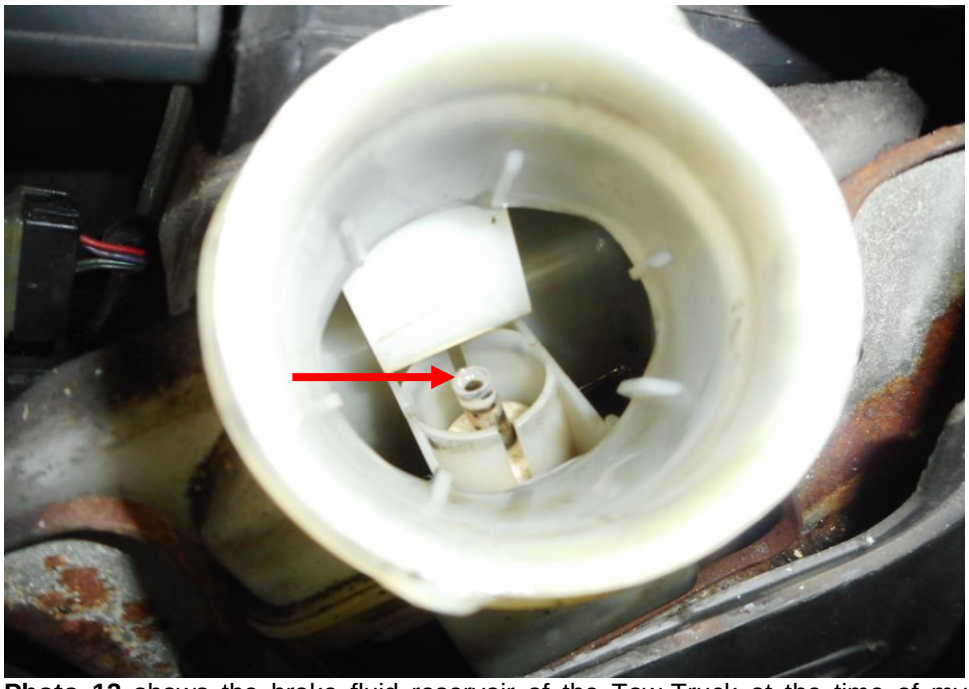


Photo 12 shows the brake fluid reservoir of the Tow-Truck at the time of my inspection. The brake fluid was observed to be of insufficient level (arrowed).

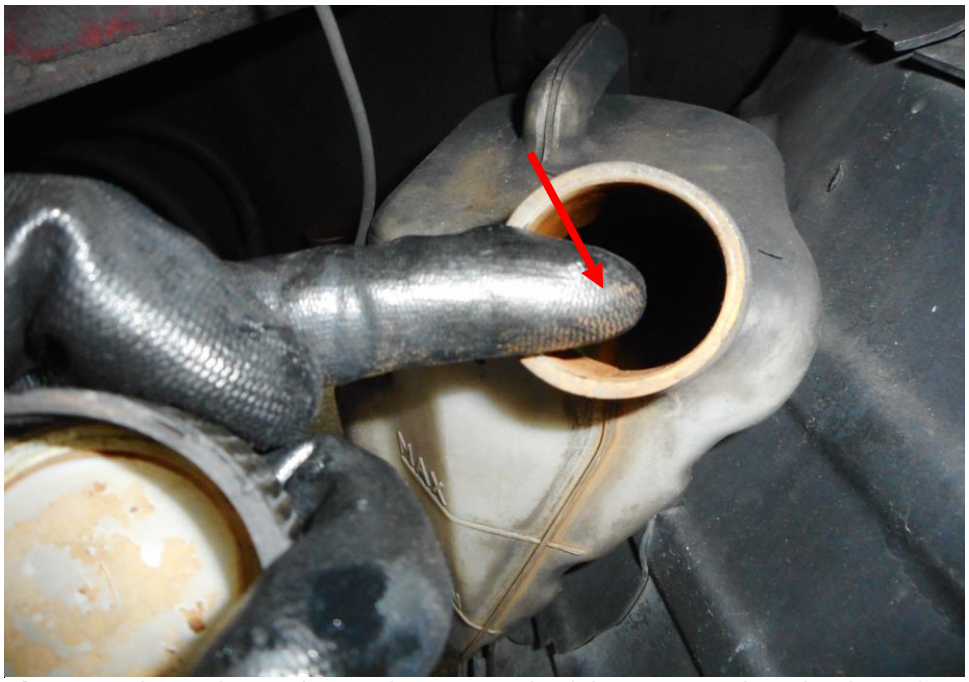


Photo 13 shows the engine coolant reservoir of the Tow-Truck at the time of my inspection. The engine coolant was observed to be of insufficient level (arrowed).

Photo 14 shows the engine oil dipstick of the Tow-Truck at the time of my inspection. The engine oil was observed to be of sufficient level and without any contamination.

Photo 15 shows the undercarriage of the Tow-Truck, at the area where the engine housing and transmission housing are located. I observed sign(s) of fluid leakage on the ground and old fluid stain(s) on the underside of the Tow-Truck.

Steering System & Braking System

11. Static brake tests conducted on the Tow-Truck revealed abnormality. The brake booster had not responded well to the various tests conducted. There was abnormal movement of the brake pedal when it was depressed. This was due to the insufficient level of brake fluid, which had caused air to leak into the braking system and caused the abnormal and decreased braking efficiency to the Tow-Truck's braking system. However, there was no fluid leakage observed around the braking components at the time of inspection. Refer to photo12 above.

12. Static test on the steering system of the Tow-Truck also revealed no abnormality to the steering system. I did not experience any abnormal free play and/or other resistance when turning the steering wheel left and right to full lock positions. My visual examination of the various steering components which had included the rack and pinion, tie rods, tie rod ends and ball joints had revealed that these components were all generally in good condition. See photo 16 - 22 below.

Photo 16 shows the various undercarriage components at the front right wheel of the Tow-Truck, 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 Tow-Truck 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 Tow-Truck, in particular the steering tie rod end (arrowed). The various undercarriage components of the Tow-Truck 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 brake pipe (arrowed) at the rear right wheel of the Tow-Truck. I did not observe any leakage of brake fluid at the time of my inspection of the Tow-Truck. However, we observed old fluid stain on the braking components.

Photo 19 shows the brake pipe (arrowed) at the rear left wheel of the Tow-Truck. I did not observe any leakage of brake fluid at the time of my inspection of the Tow-Truck. However, we observed old fluid stain on the braking components.

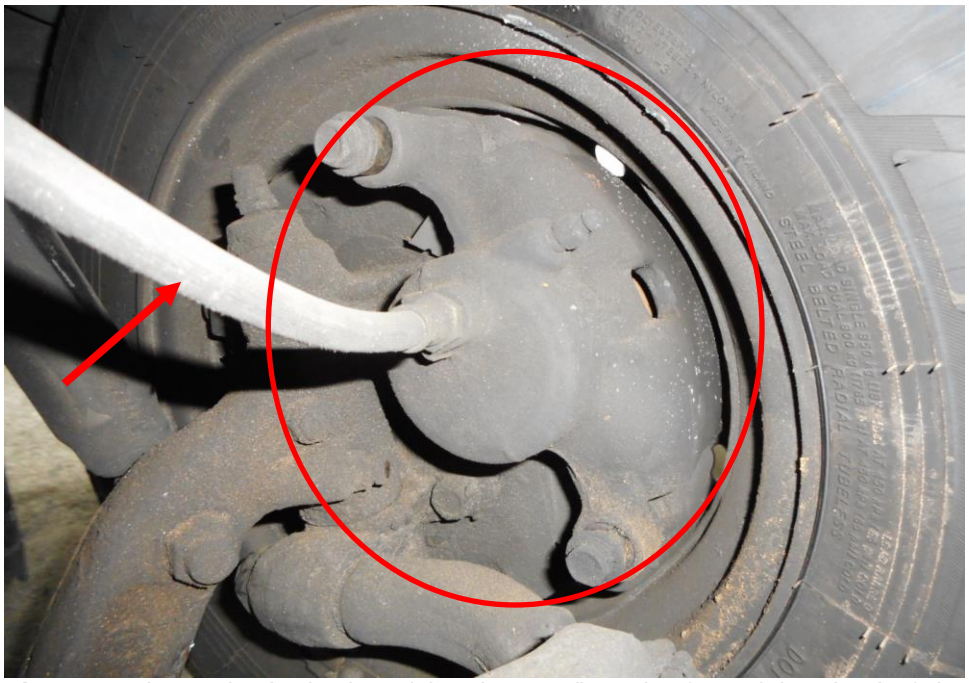


Photo 20 shows the brake hose/pipe (arrowed) at the front right wheel of the Tow-Truck. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

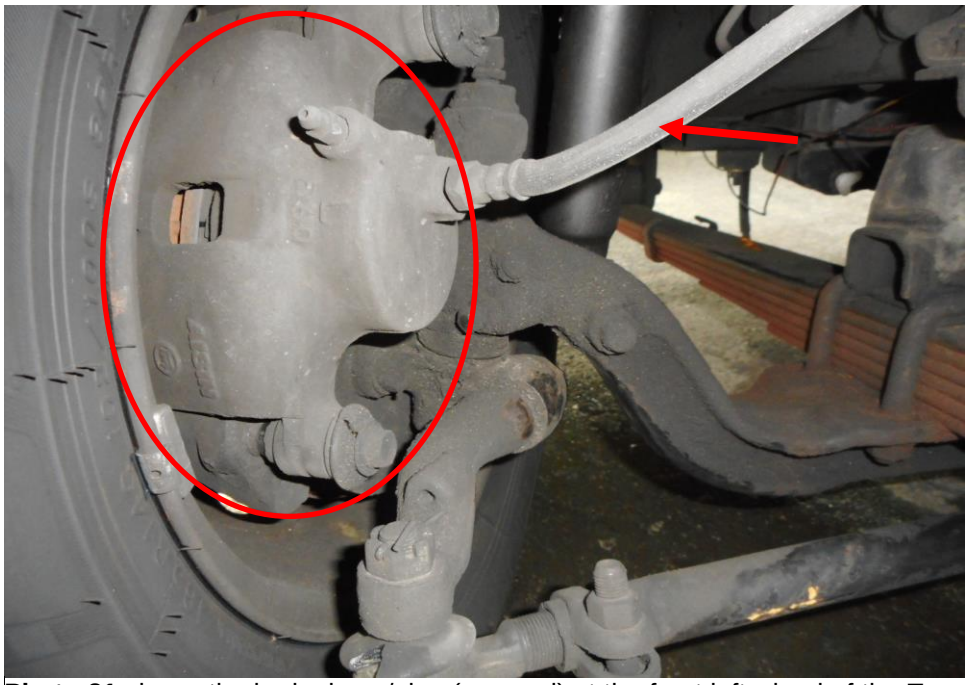


Photo 21 shows the brake hose/pipe (arrowed) at the front left wheel of the Tow-Truck. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the brake caliper (circled), brake booster, brake pedal etc had revealed all to be intact and without visible damage at the time of accident. There was also no sign of fluid stain(s) observed on the various undercarriage components.

Photo 22 shows the front left wheel of the Tow-Truck turned to its right. During my steering system test, I did not experience any abnormal free play and/or resistance when I had turned the steering wheel towards full left and full right. This would suggest that the steering system of the Tow-Truck was likely to be in serviceable condition at the material time of accident.

Electronic Safety / Warning Indicators

13. Tow-Truck's automatic self-test of the functionality of its electronic operating system was not test as it did not have any installed in it.

Operational Behaviour of the Tow-Truck

14. A short operational test of the Tow-Truck conducted by driving the Tow-Truck was not conducted as it was unsafe to be operated as the braking system of was not working due to the insufficient braking fluid in the system.

Conclusion

15. From my physical inspection of the Tow-Truck, it appears that its engine system, steering system and transmission system were all in serviceable condition. However, I found evidence(s) to suggest that there was possible mechanical failure to the braking system as there was insufficient braking fluid in the system of the Tow-Truck and that may have caused and/or contributed to the accident. As the braking efficiency of the brakes has been reduced.

16. The 4 tyres fitted on the Tow-Truck 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 4 tyres. The 4 tyres were also observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 4.5mm – 7.7mm.

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