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Your Ref: TP/IP/23475/2019 13th August 2019
Our Ref : CI/TPD19011272/P

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

MECHANICAL INSPECTION REPORT OF MOTOR PICK-UP GX 820R

1. I refer to your request on 20th June 2019 to conduct a physical inspection of a Motor Pick-Up bearing registration number GX 820R (herein referred to as "**Motor Pick-Up**"), which was involved in a road traffic accident on 7th April 2019.

2. The objective of the inspection is to determine if there was any possible mechanical failure to the Motor Pick-Up that may have contributed to the accident.

3. Following the request, I had carried out a physical inspection of the Motor Pick-Up on 8th August 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

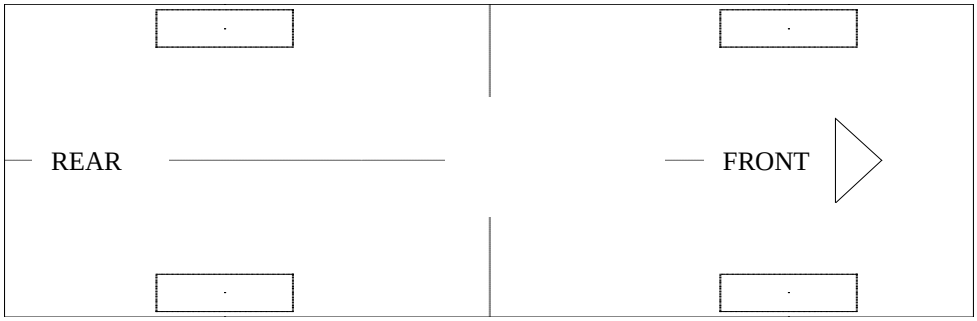
4. The mileage of the Motor Pick-Up at the time of my inspection was 277,560km.

5. The Motor Pick-Up was observed to have sustained damage at its rear portion. Its rear bumper and rear right brake lamp were amongst the body parts that were damaged as a result of the accident.

Tyres and Wheel Rims

6. The condition of the Motor Pick-Up's 4 tyres was observed 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. The tyre brand, tyre size and remaining tread depth of the 4 tyres were recorded as follows:-

Yokohama 185/R14C (7.3mm) Yokohama 185/R14C (6.1mm)



Yokohama 185/R14C (7.1mm) Yokohama 185/R14C (6.1mm)

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 – 9 below.

Photo 1 shows a general view of the Motor Pick-Up's rear body at the time of my inspection. The Motor Pick-Up was observed to have sustained damage at its rear portion. Its rear bumper and rear right brake lamp were amongst the body parts that were damaged as a result of the accident.

Photo 2 shows the close up view of the Motor Pick-Up's rear body at the time of my inspection. The Motor Pick-Up was observed to have sustained damage at its rear bumper (circled) and rear left brake lamp (arrowed) as a result of the accident.

Photo 3 shows a general view of the Motor Pick-Up's front body at the time of my inspection. The front portion of the Motor Pick-Up was observed to have been unaffected by the accident.

Photo 4 shows a general view of the Motor Pick-Up's right body at the time of my inspection. The right portion of the Motor Pick-Up was observed to have been unaffected by the accident.

Photo 5 shows a general view of the Motor Pick-Up's left body at the time of my inspection. The left portion of the Motor Pick-Up was observed to have been unaffected by the accident.

Photo 6 shows the condition of the front right tyre of the Motor Pick-Up, which was observed to be in serviceable condition with remaining tread depth of approximately 6.1mm. The tyre was sufficiently inflated for vehicular operation with no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread. The 4 tyres of the Motor Pick-Up were wrapped around standard steel wheel rims without any damage.

Photo 7 shows the condition of the rear right tyre of the Motor Pick-Up, which was observed to be in serviceable condition with remaining tread depth of approximately 7.1mm. The tyre was also observed to be sufficiently inflated for vehicular operation with no tear, cut or burst mark(s).

Photo 8 shows the condition of the rear left tyre of the Motor Pick-Up, which was observed to be in serviceable condition with remaining tread depth of approximately 7.3mm. The tyre, which was wrapped around steel wheel rim, was also observed to be sufficiently inflated for vehicular operation. The 4 tyres of the Motor Pick-Up were wrapped around standard steel wheel rims.

Photo 9 shows the condition of the front left tyre of the Motor Pick-Up, which was observed to be in serviceable condition with remaining tread depth of approximately 6.1mm. 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 Motor Pick-Up's 4 tyres.

Engine Compartment & Operating Fluids

8. Upon examination of the engine compartment of the Motor Pick-Up, I had observed all the parts and components inside the engine compartment to be intact and unaffected by the accident. The brake fluid, engine oil and engine coolant were all found to be of sufficient level for operating purposes. Visually, there was also no contamination found to these fluids.

9. Further examination of the engine compartment revealed no sign(s) or indication(s) of fluid leakage and/or fluid stain within the engine compartment of the Motor Pick-Up.

10. My subsequent checks on the underside of the Motor Pick-Up also revealed no sign(s) or indication(s) of fluid leak and/or fluid stain(s). Visually, the various undercarriage components of the Motor Pick-Up were all observed to be intact and without any visible damage. See photo 10 – 15 below.

Photo 10 shows a general view of the Motor Pick-Up's engine compartment. The various parts and components inside the engine compartment were unaffected by the accident. There was also no sign(s) or indication(s) of fluid leakage and/or fluid stain within the engine compartment.

Photo 11 shows the brake fluid reservoir of the Motor Pick-Up at the time of my inspection. The brake fluid was observed to be of sufficient level and without any visible contamination.

Photo 12 shows checks being carried out to the engine coolant of the Motor Pick-Up at the time of my inspection. The engine coolant was observed to be of sufficient level and without any visible contamination.

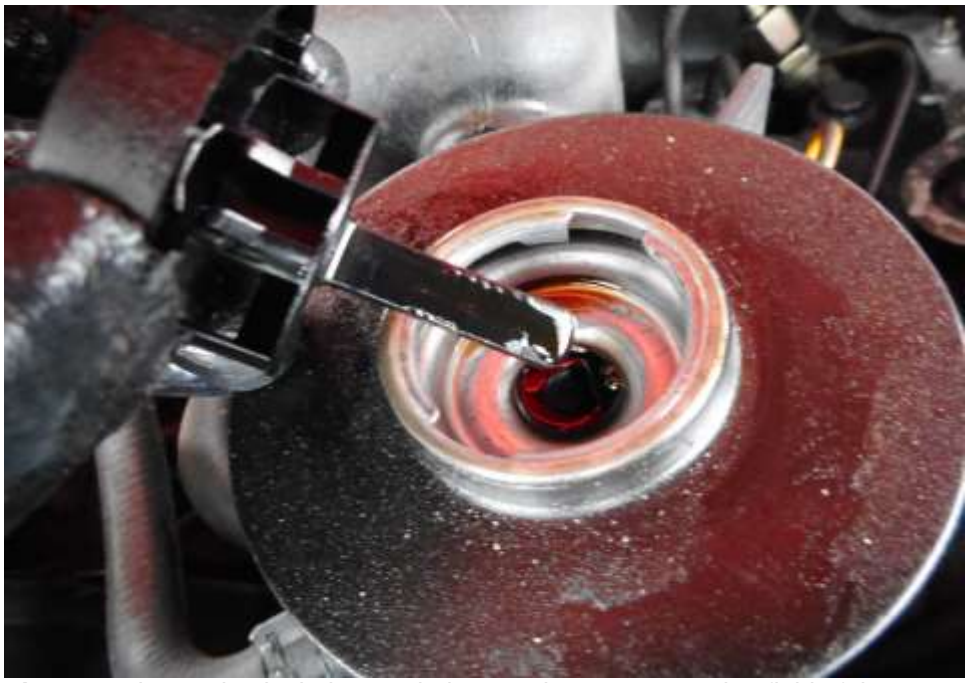


Photo 13 shows checks being carried out to the Power steering fluid of the Motor Pick-Up at the time of my inspection. The steering fluid was observed to be of sufficient level and without any visible contamination.

Photo 14 shows the engine oil dip stick of the Motor Pick-Up at the time of my inspection. The engine oil was observed to be of sufficient level and without any visible contamination.

Photo 15 shows the undercarriage of the Motor Pick-Up, 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 Pick-Up.

Braking System & Steering System

11. Static brake tests conducted on the Motor Pick-Up revealed no abnormality. The brake booster had responded well to the various tests conducted. There was also no abnormal movement of the brake pedal when it was depressed. In general, the static brake tests had suggested that there was no internal leakage of pressure/vacuum in the braking system of the Motor Pick-Up. The braking system of the Motor Pick-Up was likely to be in serviceable condition at the material time. This was taking into consideration that the brake fluid was of sufficient level, and also that there was no sign(s) of brake fluid leakage along the brake hoses and brake pipes.

12. Static test on the steering system of the Motor Pick-Up 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 steering rack and pinion, tie rods, tie rod ends and ball joints revealed that these components were all generally in good condition. See photo 16 - 23 below.

Photo 16 shows the brake hose/pipe (arrowed) at the rear left wheel of the Motor Pick-Up. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Pick-Up. Static tests of the Motor Pick-Up's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Pick-Up were also all found to be intact and without any visible damage.

Photo 17 shows the brake hose/pipe (arrowed) at the rear right wheel of the Motor Pick-Up. No leakage of brake fluid was observed. Visual examination of the various components of the braking system like the drum brake, brake booster, brake pedal etc had revealed all to be intact and without visible damage.

Photo 18 shows the brake hose/pipe (arrowed) at the front right wheel of the Motor Pick-Up. I did not observe any leakage of brake fluid at the time of my inspection of the Motor Pick-Up. Static tests of the Motor Pick-Up's braking system had indicated that there was no internal leakage of pressure/vacuum. The undercarriage components of the Motor Pick-Up were also all found to be intact and without any visible damage.

Photo 19 shows the brake hose/pipe (arrowed) at the front left wheel of the Motor Pick-Up. 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.

Photo 20 shows the front left wheel of the Motor Pick-Up turned to its full 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 the left and right. This would suggest that the steering system of the Motor Pick-Up was likely to be in serviceable condition at the material time of accident.

Photo 21 shows the various undercarriage components at the front right wheel of the Motor Pick-Up, in particular the steering tie rod (red arrow) The various steering components were all found to be intact, suggesting that the steering system of the Motor Pick-Up was likely to be in serviceable condition at the material time of accident. There was also no sign of fluid stain observed on the various undercarriage components at the front right wheel of the Motor Pick-Up.

Photo 22 shows the various undercarriage components at the front left wheel of the Motor Pick-Up, which had included the steering tie rod (red arrow). The various undercarriage components of the Motor Pick-Up were all found to be intact without any visible damage.

Photo 23 shows the various undercarriage components of the Motor Pick-Up, which had included the drive shaft (red arrow). The various undercarriage components of the Motor Pick-Up were all found to be intact without any visible damage.

Electronic Safety / Warning Indicators

13. The Motor Pick-Up was not fitted with any electronic safety feature(s) like Anti-Brake Lock System (ABS), Supplemental Restraint System (SRS) etc. There hence no test carried out on the functionality of these systems.

Operational Behaviour of the Motor Pick-Up

14. A short operational test of the Motor Pick-Up to primarily determine whether there was any abnormality to its engine system, its transmission system and braking system was subsequently carried out.

15. During the operational test, the transmission system of the Motor Pick-Up was able to be shifted to drive mode and reverse mode without any difficulty. There was no abnormal sounds heard and/or abnormal behaviour of the Motor Pick-Up's engine system. It was able to move forward and backward normally. The braking system was also found to be in working condition as the Motor Pick-Up was able to slow down and come to a complete stop upon depressing of the brake pedal.(Refer to photo 3 & 20)

Conclusion

16. From my physical inspection of the Motor Pick-Up, it appears that its engine system, transmission system, steering system and braking system were all in serviceable condition. I did not find any evidence(s) to suggest that there was possible mechanical failure and/or abnormal behaviour to the Motor Pick-Up that may have caused and/or contributed to the accident.

17. A short operational test of the Motor Pick-Up, which I had conducted, did not produce any sign(s) or symptom(s) to suggest that there was any abnormality to its engine system, its transmission system and braking system.

18. The 4 tyres of the Motor Pick-Up 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 6.1mm to 7.3mm.

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