

Your Ref: TP/IP/14557/2022
Our Ref: CI/TPD22008718/N

7 September 2022

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

INSPECTION REPORT OF MOTORCYCLE TP 418H

1. We refer to your request dated 5 September 2022 to conduct a physical inspection of a motorcycle bearing registration number TP 418H (herein referred to as "**Motorcycle**"), which was involved in a non- fatal road traffic incident on 10 June 2022.
2. The purpose of this inspection is to primarily determine if there was any possible mechanical failure to the Motorcycle that may have contributed to the incident.
3. Following the request, we had carried out a physical inspection of the Motorcycle on 6 September 2022 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. We now set out below our observations and comments with respect to this inspection.

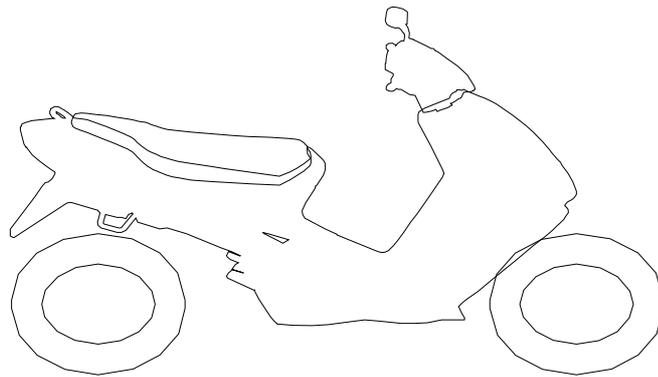
General Condition

4. The mileage of the Motorcycle at the time of our inspection was 13, 752km.
5. The Motorcycle was observed to have sustained damages all around. The body parts that were found to have been damaged include its windshield, front blinker lamps, side mirrors, left engine crashbar, rear crashbars, left side pannier, top box and right cowling, amongst others.

Tyres and Wheel Rims

6. The condition of the 2 tyres of the Motorcycle was observed to be in serviceable condition. We did not observe any tear, burst mark(s) and/or punctured hole(s) on the sidewalls as well as across the tread of the 2 tyres. Both the tyres were observed to be sufficiently inflated for vehicular operation.

7. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-



Michelin 180/55 - 17 (2mm)

Michelin 120/70 - 17 (2mm)

8. The 2 tyres were wrapped around alloy wheel rims. At the time of our inspection, we did not observe any visible damage on the front and rear wheel rim of the Motorcycle. See photos 1 – 17 below.



Photo 1 shows the speedometer gauge of the Motorcycle where the mileage recorded at the time of our inspection was 13, 752km (circled).



Photo 2 shows a general view of the frontal portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained damages all around.



Photo 3 shows a general view of the left body of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained damages all around.



Photo 4 shows a general view of the rear portion of the Motorcycle at the time of our inspection. The Motorcycle was observed to have sustained damages all around. Amongst the body parts that were found to have been damaged include its windshield, front blinker lamps, side mirrors, left engine crashbar, rear crashbars, left side pannier, top box and right cowling, amongst others.



Photo 5 shows a closer view of the windshield (arrowed) which was amongst the body parts at the front body of the Motorcycle that had sustained damage as a result of the incident.



Photo 6 shows a closer view of the grazed left front blinker lamp of the Motorcycle as a result of the incident (arrowed).



Photo 7 shows a closer view of the left side mirror of the Motorcycle that had sustained damage as a result of the incident (arrowed).



Photo 8 shows a closer view of the left side crash bar (circled) which were amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the incident.



Photo 9 shows a closer view of the left side rear crash bar (circled) which were amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the incident.



Photo 10 shows a closer view of the left pannier (arrowed) which was amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the incident.



Photo 11 shows a closer view of the top box (arrowed) which was amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the incident.



Photo 12 shows a closer view of the grazed right front blinker lamp of the Motorcycle as a result of the incident (arrowed).



Photo 13 shows a closer view of the right side mirror (arrowed) which was amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the incident.



Photo 14 shows a closer view of the right cowling of the Motorcycle that had sustained damage as a result of the incident (circled).



Photo 15 shows a closer view of the right side rear crash bar (circled) which were amongst the body parts of the Motorcycle that had sustained damages of grazing nature as a result of the incident.



Photo 16 shows the front tyre of the Motorcycle at the time of our inspection. The front tyre was observed to be in serviceable condition with remaining tread depth of approximately 2mm. The pattern of the tread was also clearly visible. There was no tear, burst mark(s) and/or punctured hole(s) on the sidewalls as well as across the tread of the front tyre.



Photo 17 shows the condition of the Motorcycle's rear tyre. The rear tyre was observed to be in serviceable condition with remaining tread depth of approximately 2mm. The tyre was also observed to be sufficiently inflated for vehicular operation. We did not observe any tear, burst mark(s) and/or punctured hole(s) on the sidewalls as well as across the tread of the rear tyre.

Engine & Drive Train

9. Upon examination of the Motorcycle's engine area, we had observed that the various engine related parts and components were intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the engine area of the Motorcycle.
10. The Motorcycle operates on a shaft-driven system, where a shaft connects a gear inside the gearbox to another gear inside a hub on the rear wheel. When the engine is sparked, power is transferred along the shaft to the rear wheel, and the Motorcycle moves forward. The shaft of the Motorcycle was found to be intact without any misalignment. See photos 18 – 20 below.



Photo 18 shows the left side of the engine of the Motorcycle at the time of our inspection. The various engine related parts and components were found to be intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the left engine area of the Motorcycle.



Photo 19 shows the right side of the engine of the Motorcycle at the time of our inspection. The various engine related parts and components were found to be intact with no visible damage. There was also no sign(s) or indication(s) of fluid leak observed around the right engine area of the Motorcycle.



Photo 20 shows the general view of the shaft (arrowed) of the Motorcycle, which was observed to be intact with no misalignment.

Steering System & Braking System

11. Our checks on the various steering components of the Motorcycle revealed that its steering system was in serviceable condition. Its front fork was found to be intact and undamaged. Turning the handle bar towards the left and right also did not produce any abnormal free play and/or resistance.
12. The clutch system of the Motorcycle was observed to be of a hydraulic type, where hydraulic (clutch fluid) pressure is needed to effectively engage and disengage the clutch. The clutch is disengaged by pressing the clutch lever at the Motorcycle's left handlebar.
13. Our visual examination of the various components in the Motorcycle's hydraulic clutch system like the clutch lever and clutch hoses revealed all to be intact and without damage. There was also no leakage of clutch fluid observed along the clutch hoses. This was from the respective clutch fluid reservoir at the left handlebar of the Motorcycle. The clutch fluid was found to be of sufficient level for operating purposes and without any contamination.
14. Static tests conducted on the clutch of the Motorcycle had appear to indicate that the hydraulic clutch system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon pressing the clutch lever. This would indicate that there was no leakage of pressure/vacuum in the hydraulic clutch system.
15. The braking system of the Motorcycle was observed to be of a full hydraulic type, where hydraulic (brake fluid) pressure controls the brake for the front wheel and rear wheel. The brake for the front wheel is engaged by pressing the brake lever at the right side of the Motorcycle's handle bar while the brake for the rear wheel is engaged by stepping on the brake pedal at the right side foot rest of the Motorcycle.
16. Our visual examination of the various components in the Motorcycle's braking system like the brake discs, brake calipers, brake lever, brake foot pedal and brake hoses revealed all to be intact and without damage. There was also no leakage of brake fluid observed along the brake hoses. This was from the respective brake fluid reservoirs to the front brake calipers and rear brake caliper of the Motorcycle. The brake fluid for the front brake and rear brake was found to be of sufficient level for operational purposes and without any contamination.

17. Static brake tests conducted on the front and rear brake of the Motorcycle had appear to indicate that the braking system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon pressing the brake lever and upon stepping on the brake pedal. This would indicate that there was no leakage of pressure/vacuum in the brake system.
18. We subsequently carried out an operational test of the Motorcycle's braking system. This was done by manually pushing the Motorcycle forward and backward, simulating the Motorcycle in motion, and thereafter engaging the front brake and rear brake of the Motorcycle. At the end of the short operational test, we did not observe any abnormal behaviour of the Motorcycle's braking system. The front and rear wheel of the Motorcycle were able to stop rotating immediately upon depressing the front brake lever and upon stepping on the rear brake pedal.
19. In general, the observations gathered during the brake test had indicated that the braking system of the Motorcycle was in serviceable condition. See photos 21 – 30 below.



Photo 21 shows the front forks (arrowed) of the Motorcycle. The front forks and fork bracket of the Motorcycle were both found to be intact and undamaged. Turning the Motorcycle's handle bar towards the left and right did not produce any abnormal free play and/or resistance. The steering system of the Motorcycle was in serviceable condition at the time of our inspection.



Photo 22 shows the front wheel of the Motorcycle turned towards its full left. Turning the Motorcycle's handle bar towards the left and right did not produce any abnormal free play and/or resistance. This would indicate that the steering system of the Motorcycle was in serviceable condition at the time of our inspection.



Photo 23 shows the front wheel of the Motorcycle turned towards its full right. Turning the Motorcycle's handle bar towards the left and right did not produce any abnormal free play and/or resistance. This would indicate that the steering system of the Motorcycle was in serviceable condition at the time of our inspection.

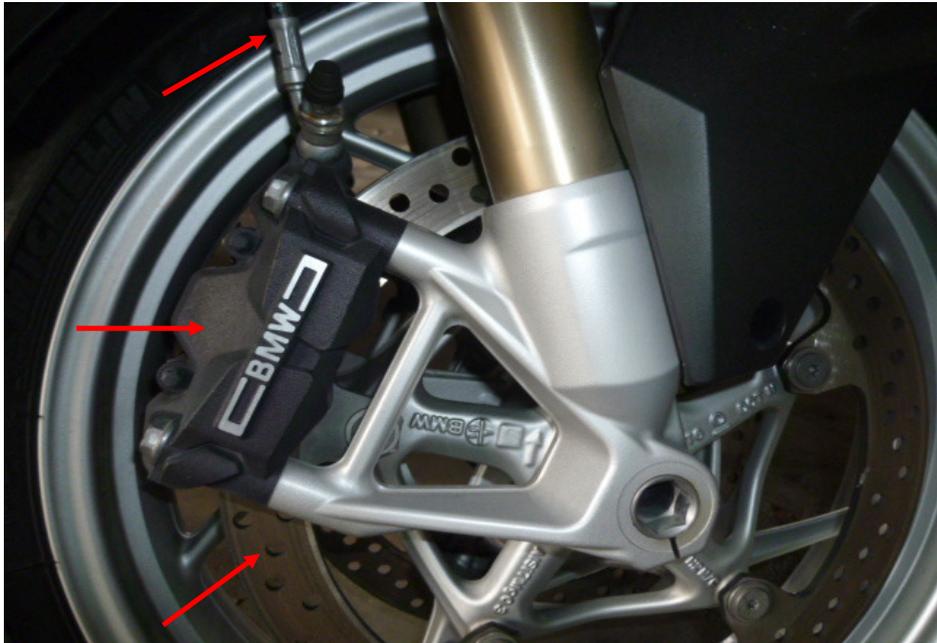


Photo 24 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) at the right side of the Motorcycle's front wheel, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.



Photo 25 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) at the left side of the Motorcycle's front wheel, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.



Photo 26 shows the brake fluid reservoir for the front brake of the Motorcycle. The brake fluid was observed to be of sufficient level for operational purposes and without contamination.



Photo 27 shows the front brake lever being depressed. There was some resistance felt (spongy like feel) upon pressing the front brake lever (arrowed). This would indicate that there is no leakage of pressure/vacuum in the brake system.



Photo 28 shows the hydraulic clutch fluid reservoir for the hydraulic clutch system of the Motorcycle. The hydraulic clutch fluid was observed to be of sufficient level for operational purposes and without contamination.



Photo 29 shows the clutch lever being depressed. There was some resistance felt (spongy like feel) upon pressing the clutch lever (arrowed). This would indicate that there is no leakage of pressure/vacuum in the hydraulic clutch system.

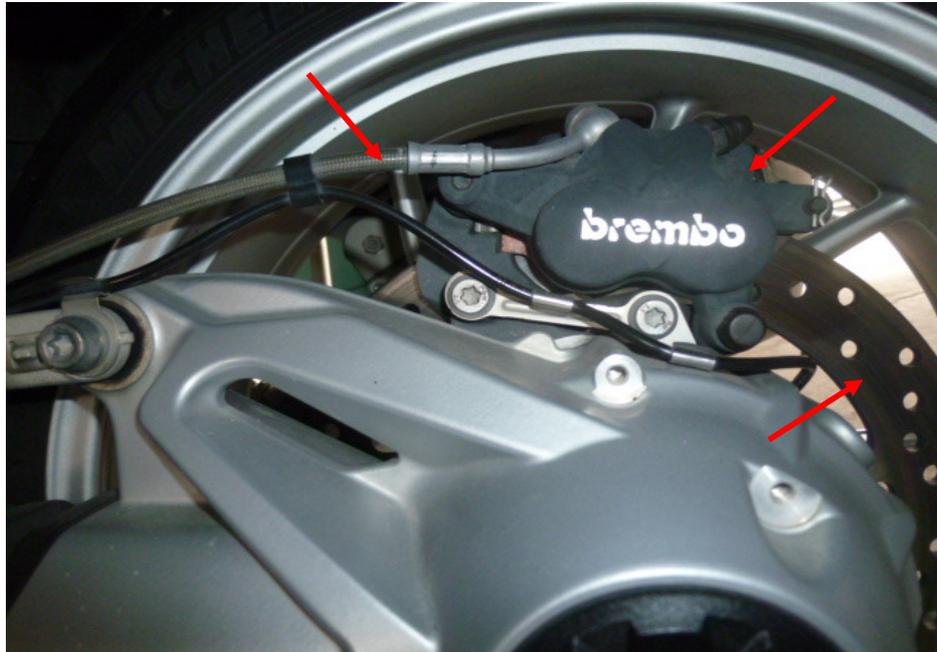


Photo 30 shows a close up view of the rear brake caliper, rear brake disc and rear brake hose (arrowed) of the Motorcycle, which are all part of the components in the hydraulic rear brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

Electronic Safety / Warning Indicators

20. The Motorcycle's automatic self-test of the functionality of its various electronic operating systems like the Anti-Brake Lock System (ABS) and Traction Control System (TCS) during cranking of the engine had indicated that these systems were in working condition and without abnormality. This can be established from the warning lights disappearing from the instrument panel after the self-test. See photos 31 - 33 below.



Photo 31 shows the warning lights for the various electronic operating systems of the Motorcycle appearing on its instrument panel during the self-test when the engine is cranked, in particular the ABS light and TCS light (arrowed).

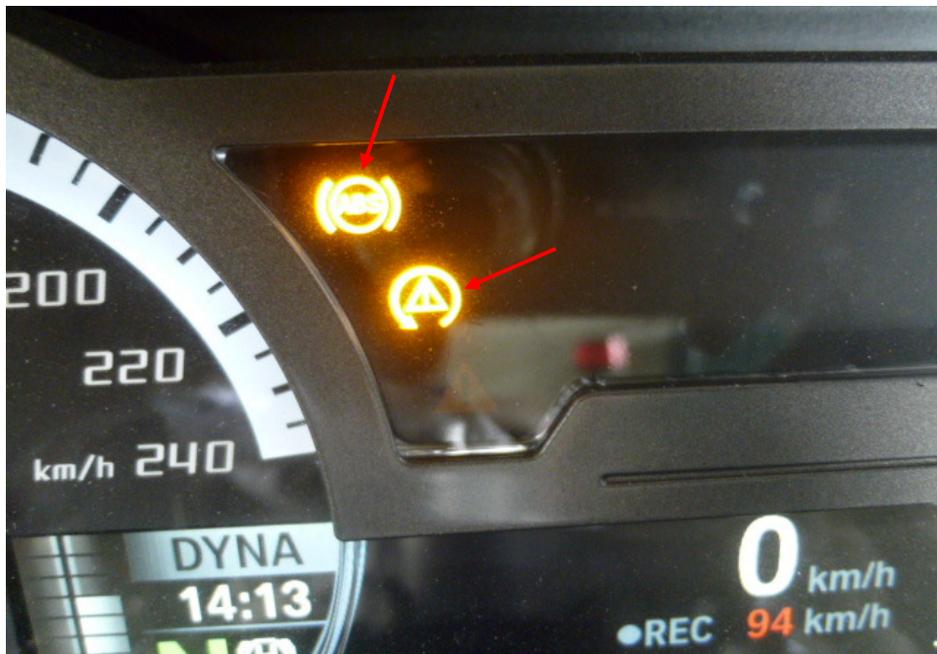


Photo 32 shows a close up view of the warning lights for the various electronic operating systems of the Motorcycle appearing on its instrument panel during the self-test when the engine is cranked, in particular the ABS light and TCS light (arrowed).



Photo 33 shows no warning lights illuminated on the instrument panel of the Motorcycle after the engine was cranked. This would suggest that there was no abnormality to the various electronic operating systems of the Motorcycle, like the ABS and TCS etc.

Operational Behaviour of the Motorcycle

21. A short operational test of the Motorcycle, to primarily determine whether there was any abnormality to its various operating systems like its engine system, its transmission system, steering system and braking system was subsequently carried out. The test was conducted by riding the Motorcycle forward, stopping, before reversing and coming to a stop again.

22. During the operational test, the various transmission gears of the Motorcycle were able to be engaged without any difficulty by depressing the clutch pedal and manually shifting the gear pedal. There were no abnormal sounds heard and/or abnormal behaviour of the Motorcycle's engine system. It was able to move forward normally. The braking system was also found to be in working condition as the Motorcycle was able to slow down and come to a complete stop upon pressing the brake lever and stepping on the brake pedal.

Conclusion

23. From our physical inspection of the Motorcycle, it appears that its engine system, transmission system, steering system and braking system were all in serviceable condition. We did not find any evidence(s) to suggest that there was possible mechanical failure to the Motorcycle that may have caused and/or contributed to the incident.
24. A short operational test of the Motorcycle, which we 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.
25. The 2 tyres of the Motorcycle were found to be in serviceable condition with remaining tread depth of approximately 2mm each. There was no tear, cut or burst mark(s) on the outer and the inner sidewalls as well as across the tread of the 2 tyres. The 2 tyres were sufficiently inflated for vehicular operation.

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