

Your Ref: TP/IP/04631/2020
Our Ref : CI/TPD20001857/N

13 April 2020

Fatal Accident Investigation Team

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

MECHANICAL INSPECTION REPORT OF MOTORCYCLE FL 9170Z

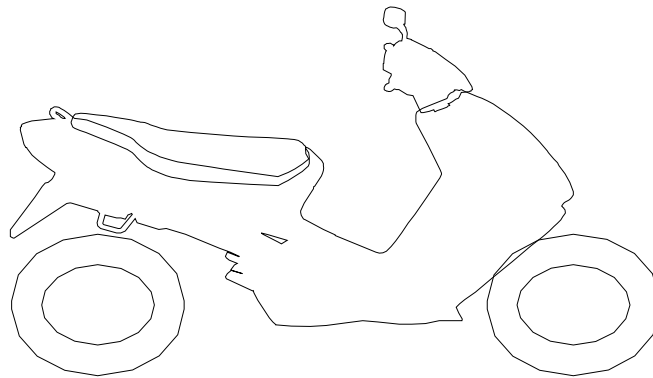
1. We refer to your request on 3 February 2020 to conduct a physical inspection of a motorcycle bearing registration number FL 9170Z (herein referred to as "**Motorcycle**"), which was involved in a fatal road traffic accident on 24 January 2020.
2. The objective of the inspection is to determine if there was any possible mechanical failure to the Motorcycle that may have contributed to the accident.
3. Following the request, we had carried out a physical inspection of the Motorcycle on 13 April 2020 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 87, 484km.
5. The Motorcycle had sustained damages all around. Body parts that were found to have been damaged include its headlight assembly, speedometer, side mirrors, clutch lever, front brake lever, right side frame, petrol tank, rear brake pedal, right front footrest, exhaust muffler and rear side covers, 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. The tyre brand, tyre size and remaining tread depth of the 2 tyres of the Motorcycle were recorded as follows:-



Bridgestone 160/60 - 17 (4mm)

Bridgestone 120/70 - 17 (4mm)

7. 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 – 18 below.



Photo 1 shows the speedometer gauge of the Motorcycle where the mileage recorded at the time of our inspection was 87,484km (circled).



Photo 2 shows a general view of the rear portion of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around.



Photo 3 shows a general view of the frontal portion of the Motorcycle at the time of our inspection. The Motorcycle had sustained damages all around. Body parts that were found to have been damaged include its headlight assembly, speedometer, side mirrors, clutch lever, front brake lever, right side frame, petrol tank, rear brake pedal, right front footrest, exhaust muffler and rear side covers, amongst others.

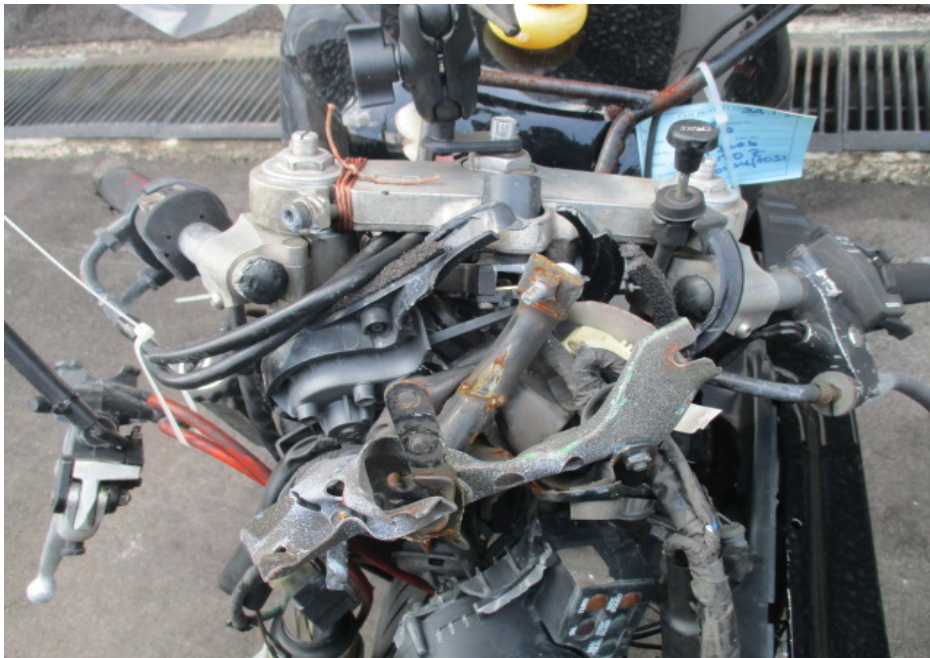


Photo 4 shows a closer view of the headlight assembly which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident.



Photo 5 shows a closer view of the front brake lever, right side mirror and right handlebar end (arrowed) of the Motorcycle. These parts were amongst the body parts of the Motorcycle which were damaged as a result of the accident.



Photo 6 shows a closer view of the dented petrol tank, which was amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.



Photo 7 shows the damaged right side frame (circled) of the Motorcycle. The damage sustained at the side frame of the Motorcycle was mainly of grazing nature.



Photo 8 shows a closer view of the right cowling which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident.



Photo 9 shows a closer view of the left cowling which was amongst the body parts at the front body of the Motorcycle that had sustained damages as a result of the accident.

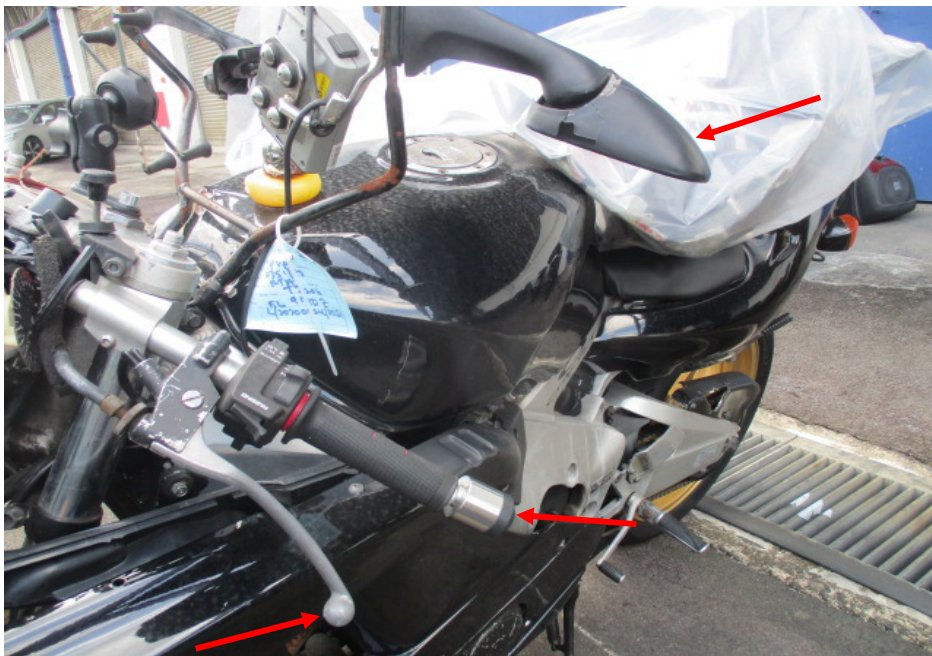


Photo 10 shows a closer view of the left side mirror, clutch lever and left handlebar end (arrowed), which were amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.



Photo 11 shows the right rear cover (circled) which was amongst the body parts at the rear body of the Motorcycle that had sustained damages as a result of the accident.



Photo 12 shows the right rear cover (circled) which was amongst the body parts at the rear body of the Motorcycle that had sustained damages as a result of the accident.

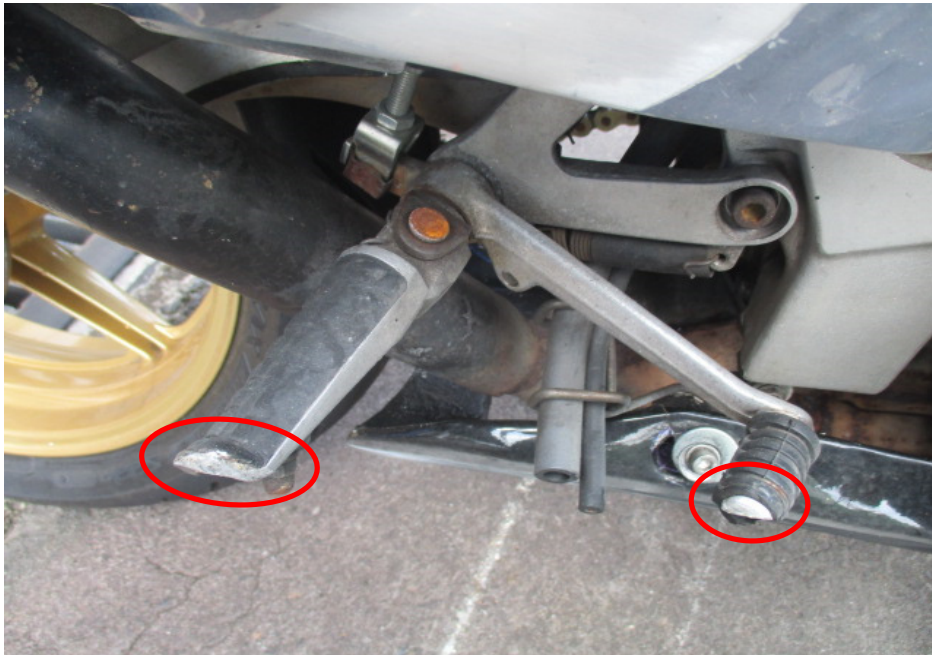


Photo 13 shows the damaged rear brake pedal and right front footrest (circled) of the Motorcycle.

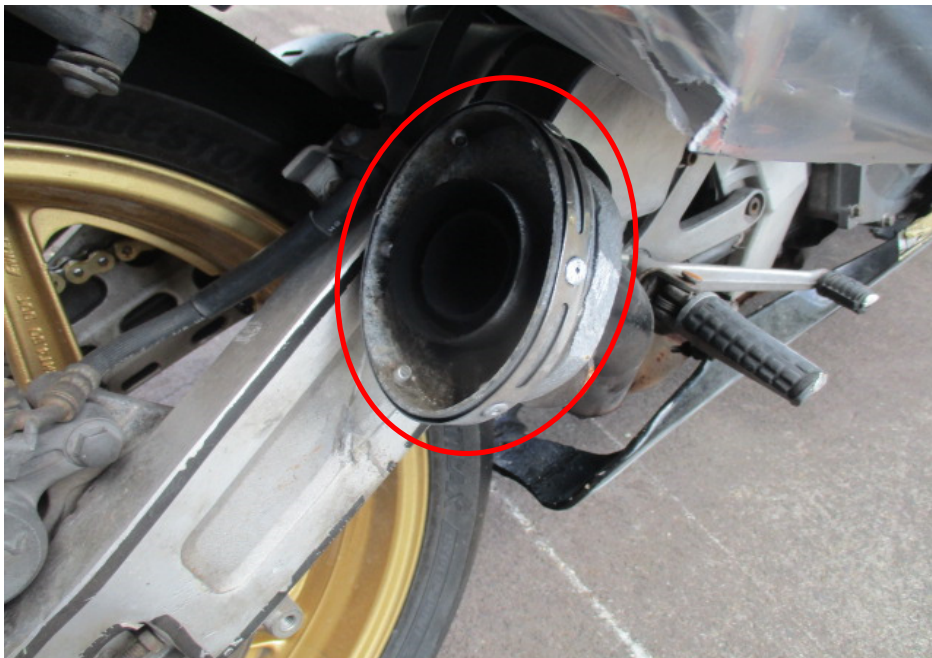


Photo 14 shows the exhaust muffler (circled) which was amongst the body parts of the Motorcycle that had sustained damage as a result of the accident.



Photo 15 shows the damaged rear cover (circled) of the Motorcycle as a result of the accident.



Photo 16 shows the damaged right rear signal lamp (circled) of the Motorcycle as a result of the accident.



Photo 17 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 4mm. 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 18 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 4mm. 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

8. Upon examination of the engine area of the Motorcycle, we had observed that the various engine related parts and components on the left side of the Motorcycle were intact with no visible damage. There was also no fluid leak and/or fluid stain found around the left engine area of the Motorcycle. The various right engine components had sustained damage of grazing nature as a result of the accident however the engine components were still intact. There was also no fluid leak and/or fluid stain found around the right engine area of the Motorcycle.
9. The gear chain of the motorcycle was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. See photos 19 – 22 below.



Photo 19 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 20 shows the right side of the engine of the Motorcycle at the time of our inspection. The various right engine components had sustained damage of grazing nature as a result of the accident however the engine components were still intact. There was also no fluid leak and/or fluid stain found around the right engine area of the Motorcycle.



Photo 21 shows the gear chain (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes. The gear chain rotates the rear wheel of the Motorcycle.

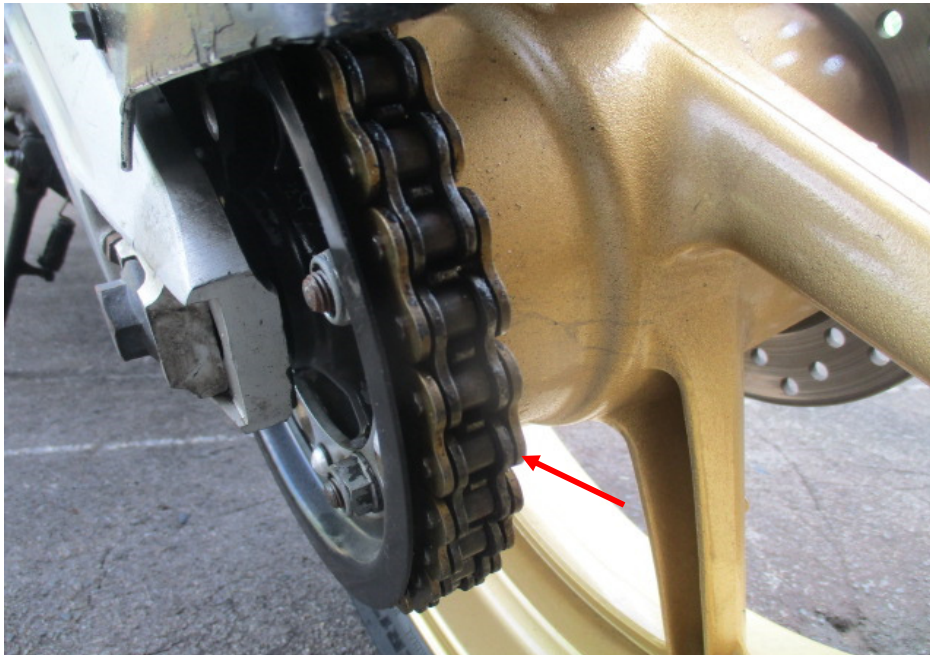


Photo 22 shows the closer view of the gear chain (arrowed) of the Motorcycle, which was observed to be intact with no misalignment. It was also adequately lubricated for operating purposes.

Steering System & Braking System

10. 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.
11. 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.
12. 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 rear brake hose. This was from the respective rear brake fluid reservoir to the rear brake caliper of the Motorcycle. The brake fluid for the rear brake was also found to be of sufficiently level and without any contamination.

13. However we observed that the front brake reservoir was missing as a result of the accident.
14. Static brake tests conducted on the Motorcycle had appear to indicate that the rear braking system of the Motorcycle was in serviceable condition. There was some resistance felt (spongy like feel) upon stepping on the brake pedal. This would indicate that there was no leakage of pressure/vacuum in the rear brake system. We were unable to conduct any static brake test on the front braking system of the Motorcycle due to the missing front brake reservoir.
15. We subsequently carried out an operational test of the Motorcycle's rear braking system. This was done by manually pushing the Motorcycle forward and backward, simulating the Motorcycle in motion, and thereafter engaging the rear brake of the Motorcycle. At the end of the short operational test, we did not observe any abnormal behaviour of the Motorcycle's rear braking system. The rear wheel of the Motorcycle was able to stop rotating immediately upon stepping on the brake pedal. See photos 23 – 29 below.

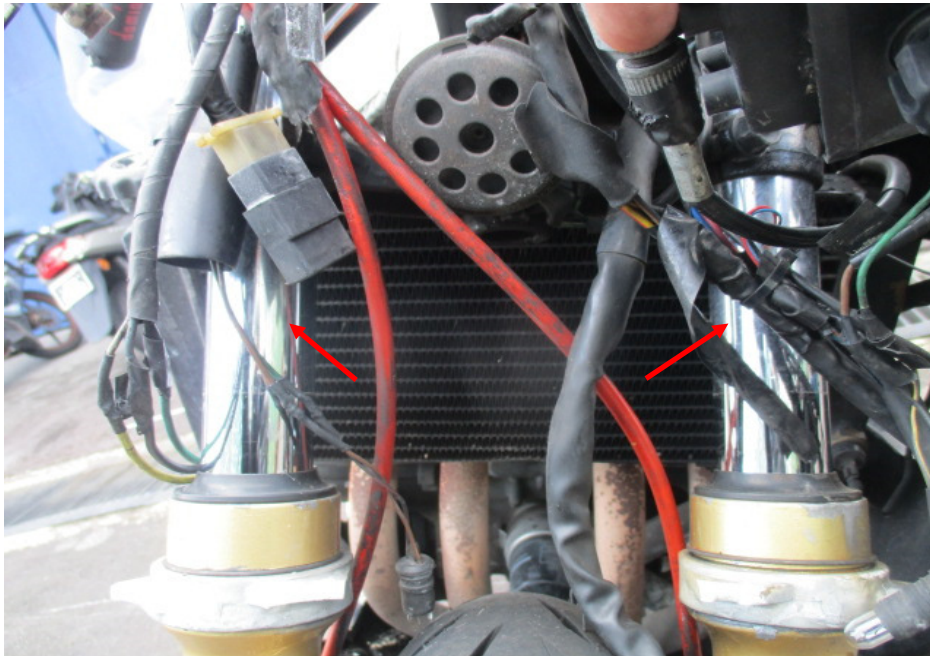


Photo 23 shows the front fork (arrowed) of the Motorcycle. The front fork and fork bracket of the Motorcycle were both found to be intact and undamaged. Turning the Motorcycle's handle bar towards the left and right did not produce any abnormal free play and/or resistance. The steering system of the Motorcycle was in serviceable condition at the time of our inspection.



Photo 24 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 25 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.

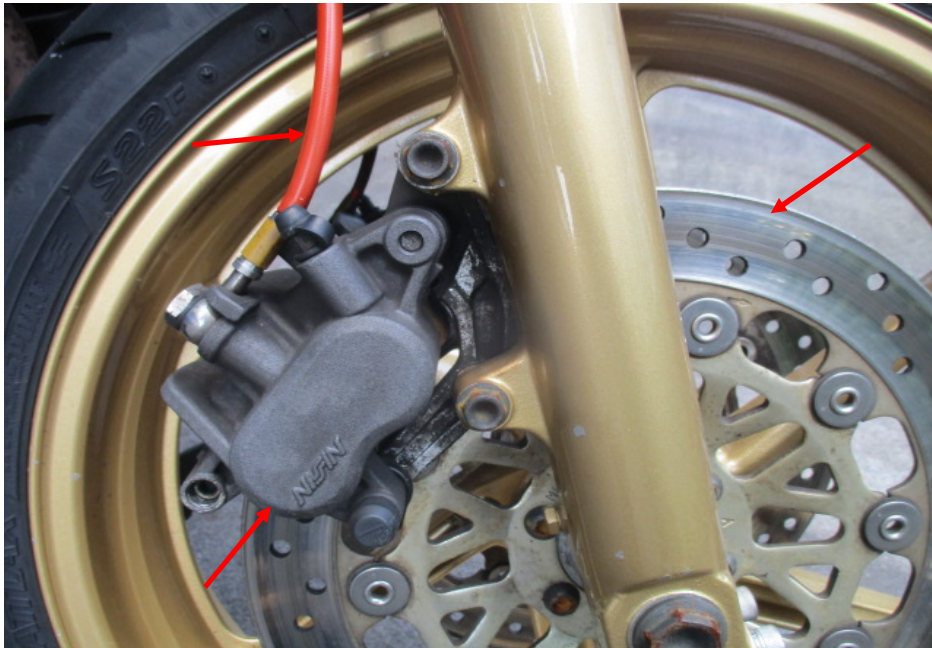


Photo 26 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) at the right side of the Motorcycle's front wheel, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

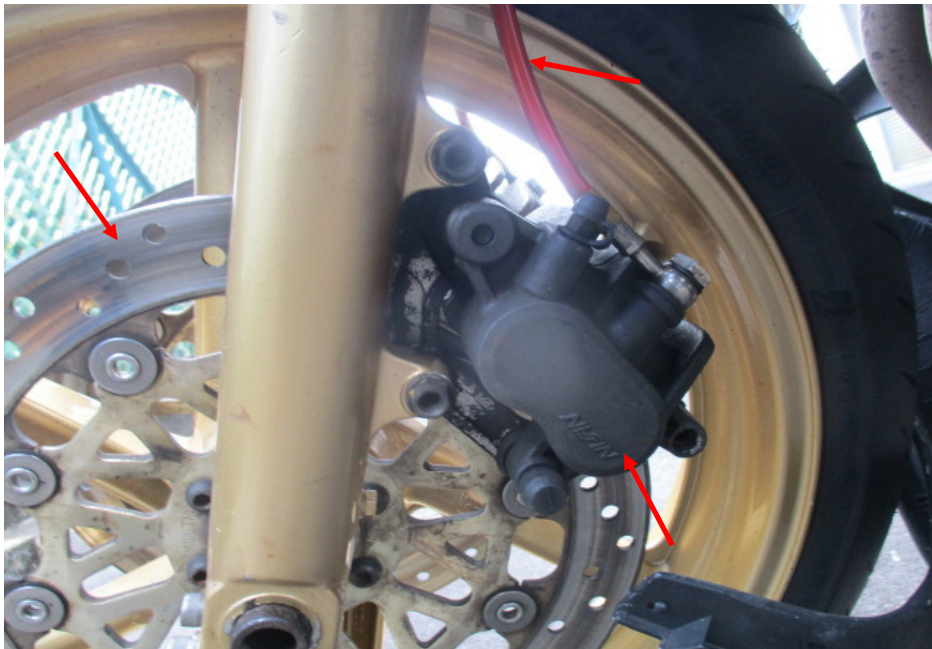


Photo 27 shows a close up view of the front brake caliper, front brake disc and front brake hose (arrowed) at the left side of the Motorcycle's front wheel, which are all part of the components in the hydraulic front brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.



Photo 28 shows the front brake lever of the Motorcycle. However we observed that the front brake reservoir was missing as a result of the accident (arrowed). Therefore we were unable to conduct any static brake test on the front braking system of the Motorcycle.

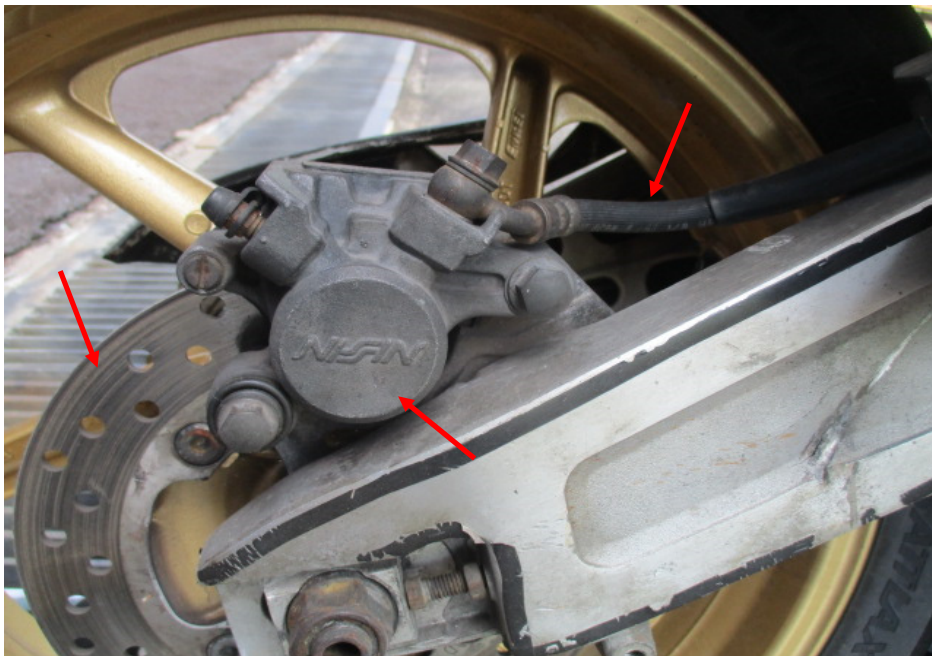


Photo 29 shows a close up view of the rear brake caliper, rear brake disc and rear brake hose (arrowed) of the Motorcycle, which are all part of the components in the hydraulic rear brake system of the Motorcycle. Our visual checks of these various components had revealed all to be intact with no visible damage. No leakage of brake fluid was also observed.

Conclusion

16. Basing on our physical inspection of the Motorcycle, it appears that the steering system and rear braking system of the Motorcycle were all in serviceable condition. However, the front braking system could not be tested due to a missing front brake reservoir as a result of the accident.
17. The 2 tyres of the Motorcycle were found to be in serviceable condition (which included the deflated front tyre). 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 front tyre was sufficiently inflated for vehicular operation. Both tyres had remaining tread depth of approximately 4mm each.

**Muhd Nazril***Senior Technical Investigator***Ang Bryan Tani***AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA**Senior Technical Investigator**Technical Investigation & Reconstructionist (SAE-A)*

DISCLAIMER OF LIABILITY TO THIRD PARTIES:- This Report is made solely for the use and benefit of the Client named on the front page of this Report. No liability or responsibility whatsoever, in contract or tort, is accepted to any third party who may rely on the Report wholly or in part. Any third party acting or relying on this Report, in whole or in part, does so at his or her own risk.