LKK Auto Consultants Pte Ltd
Company Registration No. 199607198R
51 UBI AVE 1, #01-25 PAYA UBI INDUSTRIAL PARK, SINGAPORE 408933 TEL : (065) 62563561 FAX : (065) 67414108

Your Ref: TP/IP/17963/2022 16 September 2022
Our Ref : CI/TPD22008679/N

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

INSPECTION REPORT OF POWER ASSISTED BICYCLE PAB- TRAFFIC POLICE POUND REPORT NO. 2218/22

1. We refer to your request on 16 August 2022 to conduct a physical inspection of the Power- Assisted Bicycle bearing Traffic Police Pound Report no. 2218/22 (herein referred to as **"PAB"**), which was involved in a fatal road traffic accident on 24 June 2022.

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

3. Following the request, we had carried out a physical inspection of the PAB on 15 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 PAB had sustained damages all around. The body parts that were found to have been damaged include its front mudguard, right hand brake lever, right handlebar end, right pedal and seat, amongst others as a result of the accident. See photos 1 - 10 below.

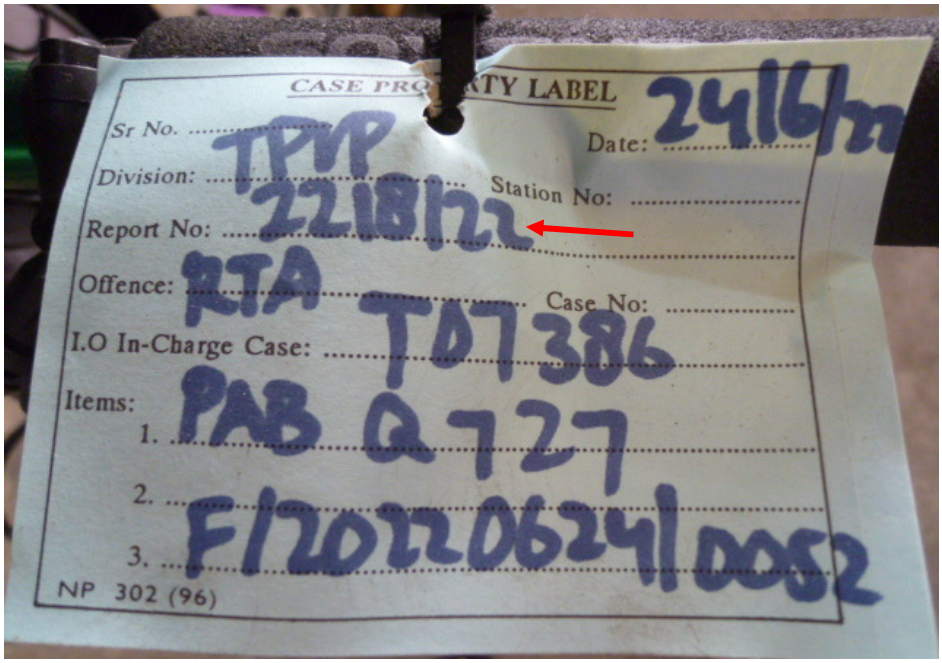


Photo 1 shows the identification of the PAB with reference to Traffic Police Pound Report No. 2218/22 (arrowed).

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

Photo 3 shows the right body of the PAB at the time of our inspection. The PAB was observed to have sustained damages all around.

Photo 4 shows the left body of the PAB at the time of our inspection. The PAB was observed to have sustained damages all around.

Photo 5 shows the rear portion of the PAB at the time of our inspection. The body parts that were found to have been damaged include its front mudguard, right hand brake lever, right handlebar end, right pedal and seat, amongst others as a result of the accident.

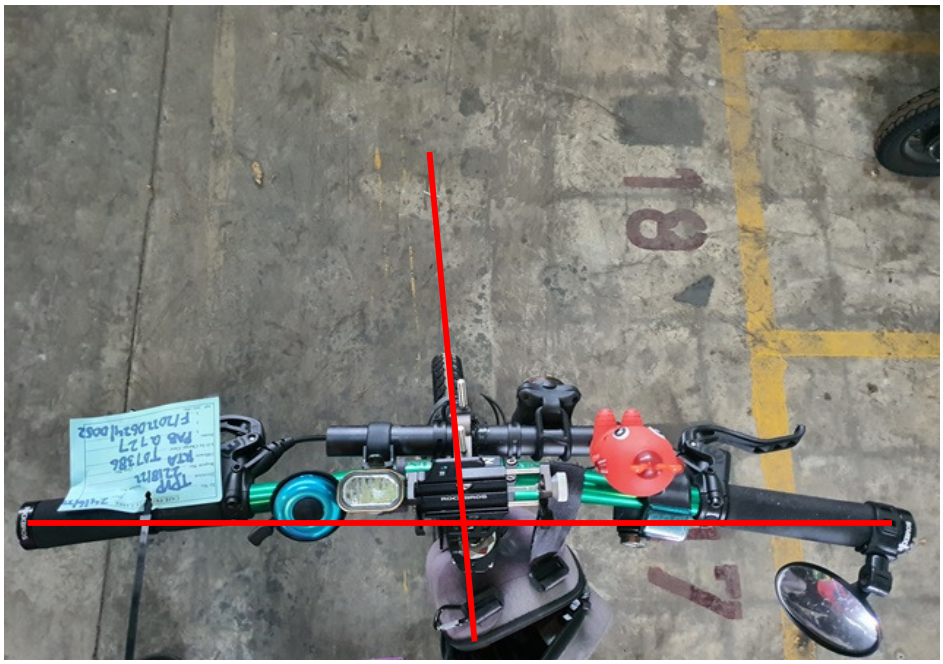


Photo 6 shows the frontal portion of the PAB (top view) at the time of our inspection. There was a misalignment of the handlebar & front tyre observed.

Photo 7 shows the grazed front mudguard (arrowed) of the PAB as a result of the accident.

Photo 8 shows the damages on the right hand brake lever and right handlebar end (arrowed) of the PAB as a result of the accident.

Photo 9 shows the damages of grazing nature on the right pedal (arrowed) of the PAB as a result of the accident.

Photo 10 shows the damages of grazing nature on the seat (arrowed) of the PAB as a result of the accident.

Tyres and Wheel Rims

5. The condition of the Electric Scooter's 2 tyres was observed to be in serviceable condition. The tread pattern of the 2 tyres was clearly visible. 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. The 2 tyres were both observed to be sufficiently inflated for vehicular operation. The tyre brand, tyre size and remaining tread depth of the 2 tyres were recorded as follows:-

Cheng Shin Tire (57 – 254) 14 X 2.125 (2mm) Cheng Shin Tire (57 – 254) 14 X 2.125 (3mm)

6. The tyres were wrapped around alloy wheel rims that were found to be without any significant damage. See photos 11 & 12 below.

Photo 11 shows the front tyre of the PAB at the time of our inspection. The front tyre was observed to be in serviceable condition with remaining tread depth of approximately 3mm. 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 front tyre.

Photo 12 shows the rear tyre of the PAB at the time of our inspection. 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.

Drive Motor

7. The PAB was controlled by a motor and gear train to drive the rear tyre. The motor was originally installed on the rear portion of the rear tyre & found adequately acceptable. The motor of the PAB was found to be intact without any misalignment or damages. It was also observed to be in operational condition. The gear train of the PAB was found to be intact without any misalignment. It was also adequately lubricated for operating purposes. See photos 13 - 15 below.

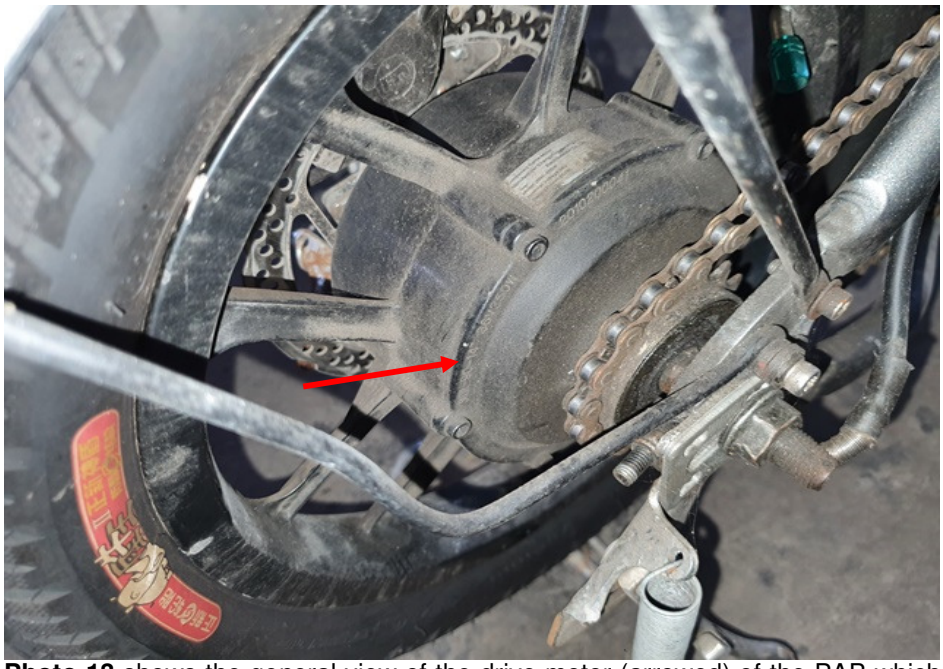


Photo 13 shows the general view of the drive motor (arrowed) of the PAB which was observed to be intact with no misalignment.

Photo 14 shows the general view of the gear train of the PAB, which was observed to be intact with no misalignment (arrowed). It was also adequately lubricated for operating purposes.

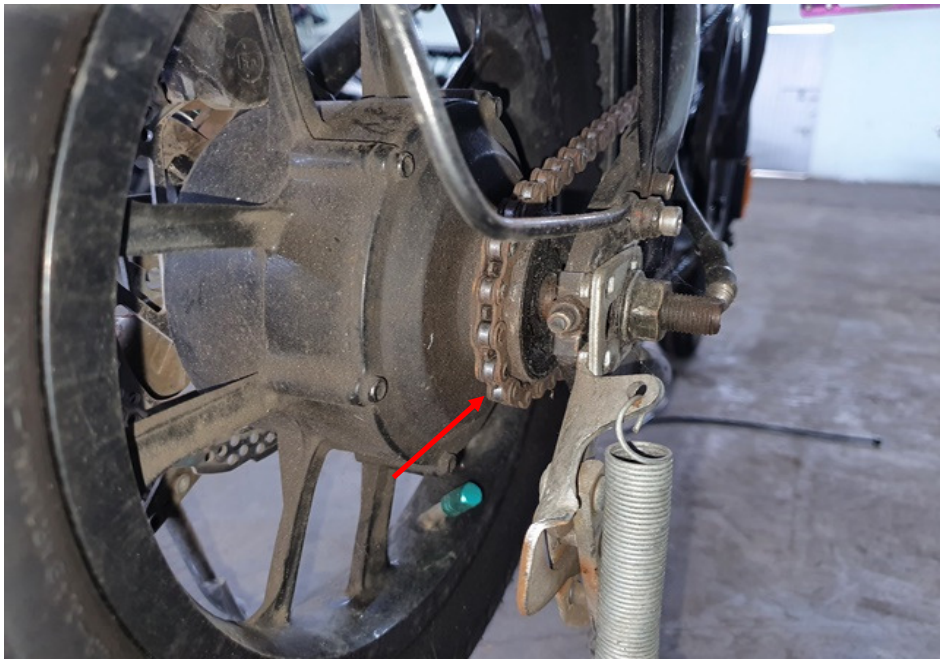


Photo 15 shows a closer view of the gear train of the PAB, which was observed to be intact with no misalignment (arrowed). It was also adequately lubricated for operating purposes.

Steering System & Braking System

8. Our checks on the various steering components of the PAB revealed that its steering system was in serviceable condition. Its front fork assembly was found to be intact and undamaged. Turning the handle bar towards the left and right did not produce any abnormal free play and/or resistance.

9. The braking system of the PAB was controlled by mechanical means (cables, calipers, brake discs and brake pads). Our visual examination of the various components in the brake system, like the left hand brake lever, right hand brake lever, brake discs, brake pads and brake calipers, revealed all to be intact and without damage. There was also no visible tear or cut observed on the connecting hoses and cables.

10. A static brake test was conducted on the front brake of the PAB. There was some resistance felt upon pressing the right hand brake lever. This was further confirmed by looking at the front brake pads while we pressed the right hand brake lever. It shows that the front brake pads responded to the gripping action. The front brake pads pressed against the front brake disc. This had appeared to indicate that the front brake of the PAB was in serviceable condition.

11. A static brake test was conducted on the rear brake of the PAB. There was some resistance felt upon pressing the left hand brake lever. This was further confirmed by looking at the rear brake pads while we pressed the left hand brake lever. It shows that the rear brake pads responded to the gripping action. The rear brake pads pressed against the rear brake disc. This had appeared to indicate that the rear brake of the PAB was in serviceable condition.

12. We subsequently carried out an operational test of the PAB's braking system. This was done by manually pushing the PAB forward and backward, simulating the PAB in motion, and thereafter engaging the front brake and rear brake levers of the PAB. At the end of the short operational test, we did not observe any abnormal behaviour of the PAB's braking system. The front wheel and rear wheel of the PAB was able to stop rotating immediately upon depressing both brake levers. See photos 16 - 22 below.

Photo 16 shows the front fork assembly (arrowed) of the PAB. The front forks and fork bracket of the PAB were both found to be intact and undamaged. Turning the PAB's handle bar towards the left and right did not produce any abnormal free play. The steering system of the PAB was in serviceable condition at the time of our inspection.

Photo 17 shows the front wheel of the PAB turned towards its full right. Turning the PAB's handle bar towards the right did not produce any abnormal free play and/or resistance. This would indicate that the steering system of the PAB was in serviceable condition at the time of our inspection.

Photo 18 shows the front wheel of the PAB turned towards its full left. Turning the PAB's handle bar towards the left did not produce any abnormal free play and/or resistance. This would indicate that the steering system of the PAB was in serviceable condition at the time of our inspection.

Photo 19 shows a static brake test conducted on the PAB's front brake. There was some resistance felt upon pressing the right hand brake lever (arrowed). It also shows that the front brake pads responded to the gripping action (circled) after depressing the right hand brake lever.

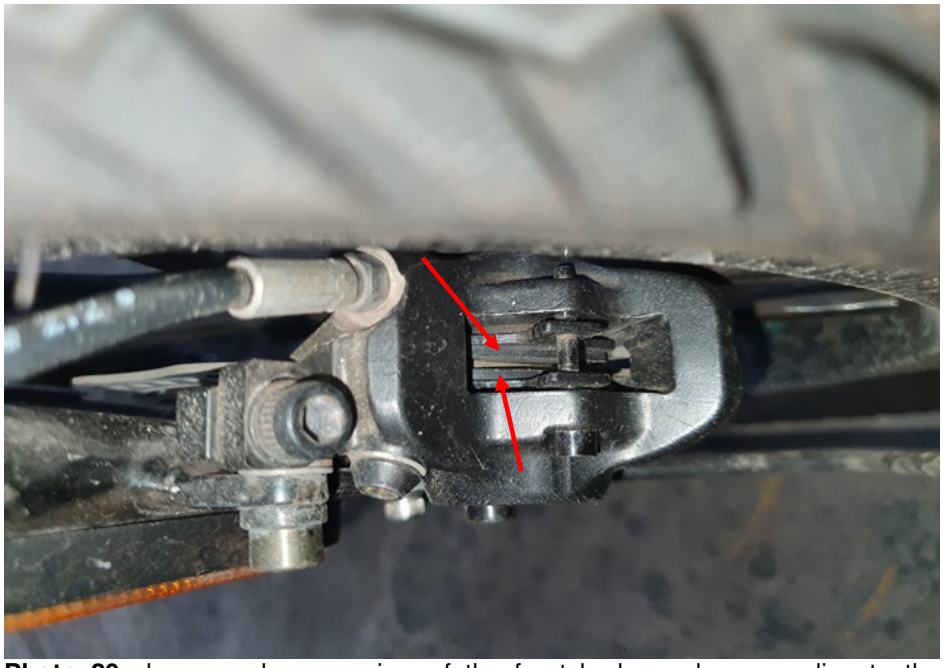


Photo 20 shows a close up view of the front brake pads responding to the gripping action. The front brake pads pressed against the front brake disc (arrowed) upon depressing the right hand brake lever. This had appeared to indicate that the front brake of the PAB was in serviceable condition.

Photo 21 shows a static brake test conducted on the PAB's rear brake. There was some resistance felt upon pressing the left hand brake lever (arrowed). It also shows that the rear brake pads responded to the gripping action (circled) after depressing the left hand brake lever.

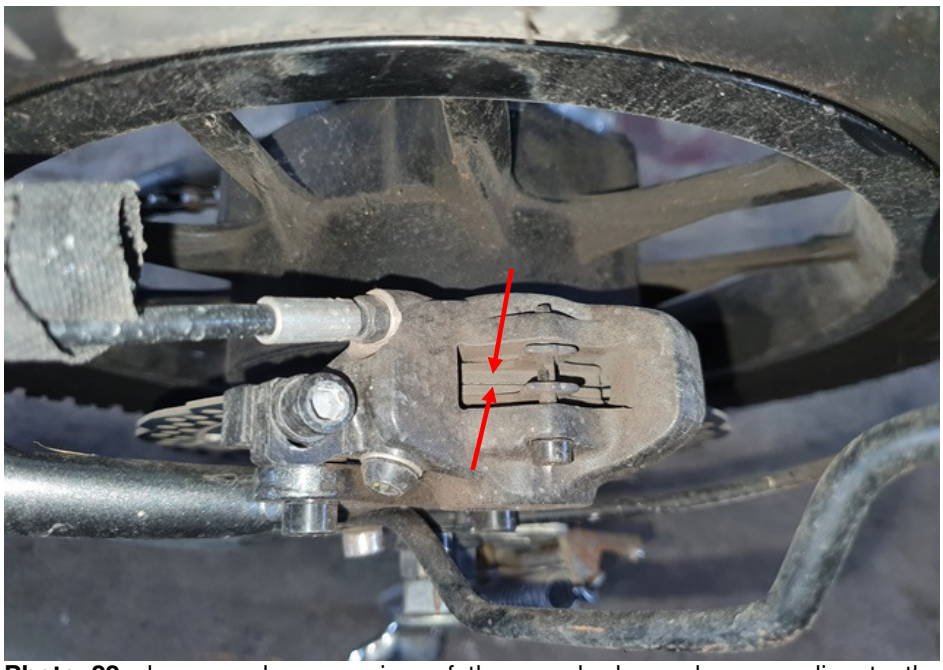
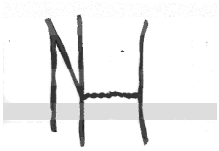


Photo 22 shows a close up view of the rear brake pads responding to the gripping action. The rear brake pads pressed against the rear brake disc (arrowed) upon depressing the left hand brake lever. This had appeared to indicate that the rear brake of the PAB was in serviceable condition.

Conclusion

13. Basing on our physical inspection of the PAB, it appears that the steering system and braking system of the PAB were all in serviceable condition. We did not find any evidence(s) to suggest that there was possible mechanical failure to the PAB that may have caused and/or contributed to the accident.

14. The condition of the PAB's 2 tyres was observed to be in serviceable condition. The tread pattern of the 2 tyres was clearly visible. 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. The 2 tyres were both observed to be sufficiently inflated for vehicular operation with remaining tread depth of approximately 3mm and 2mm.



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.