

Your Ref: TP/IP/55631/2017  
Our Ref :CI/TPD17022589/Z-1

29<sup>th</sup> January 2018

**Dedicated Offences Investigation Team**

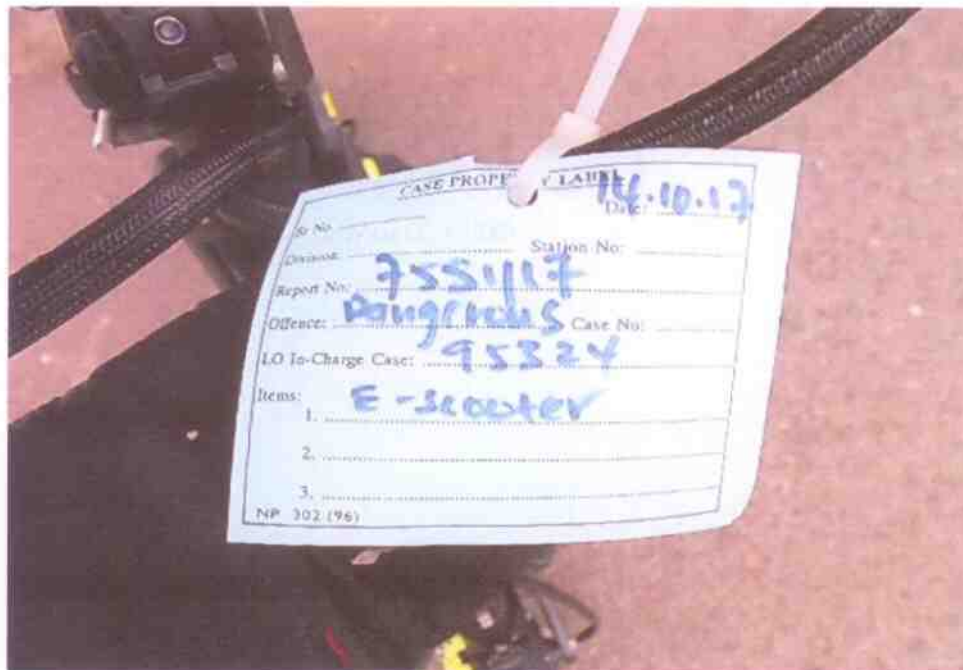
Traffic Police Department  
Singapore Police Force  
10 Ubi Avenue 3  
Singapore 408865

**INSPECTION REPORT OF ELECTRIC SCOOTER - TRAFFIC POLICE POUND  
REPORT NO. 7581/17.**

1. We refer to your request dated 30<sup>th</sup> October 2017 to conduct a physical inspection of the Electric Scooter bearing Traffic Police Pound Report no. 7581/17 (herein referred to as "**Electric Scooter**"), which was involved in a traffic law violation on 14<sup>th</sup> October 2017.
2. The purpose of this inspection is to primarily determine the steering system of the Electric Scooter, the braking system & the speed capabilities of the above identified Electric Scooter.
3. Following the request, we had carried out a physical inspection of the Electric Scooter on 30<sup>th</sup> November 2017 at the premises of Traffic Police vehicle pound, 517 Airport Road Singapore 539942. We now set out below observations and comments with respect to this inspection.

**General Condition**

4. The Electric Scooter was observed to be manufactured from a manufacturer called 'DUALTRON'. A detailed inspection revealed that the Electric Scooter was in a good condition. No damages were noted on the Electric Scooter at the time of our inspection.



**Photo 1** shows the identification of the Electric Scooter with reference to Traffic Police Pound Report No. 7581/17.



**Photo 2** shows the right portion of the Electric Scooter at time of inspection. A detailed inspection revealed that the Electric Scooter were in a good condition. No damages were noted on the Electric Scooter at the time of our inspection.



**Photo 3** shows the left portion of the Electric Scooter at time of inspection. A detailed inspection revealed that the Electric Scooter were in a good condition. No damages were noted on the Electric Scooter at the time of our inspection.



**Photo 4** shows the front portion of the Electric Scooter at time of inspection. A detailed inspection revealed that the Electric Scooter were in a good condition. No damages were noted on the Electric Scooter at the time of our inspection.

### 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:-



CST 10x2.5 (1.8mm)

CST 10x2.5 (2mm)

6. The tyres were wrapped around alloy wheel rim that was found to be without any significant damage. See photo 5 & 6 below





**Photo 5** shows the rear tyre of the Electric Scooter at the time of our inspection. 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.



**Photo 6** shows the front tyre of the Electric Scooter at the time of our inspection. 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.

### Steering System & Braking System

7. Our checks on the steering components of the Electric Scooter had revealed that its steering system was in serviceable condition & its front fork was found to be intact and undamaged. It was observed to be able to turn to full left & full right.
8. The braking system of the Electric Scooter was controlled by mechanical means (cables, callipers and springs). Our visual examination of the various components in the brake system, like the hand brake lever (left & right), brake callipers (front & rear), revealed that it was in a serviceable condition.
9. A static brake test was conducted on the Electric Scooter's front & rear brake. The test was conducted by lifting the tyre above ground & applies a little spinning action to it. The hand brake lever was then gripped in order to the stop the spinning tyre. The result was satisfactory. It stopped after gripping the hand brake to the fullest. It shows that the front & rear brake calliper was responding to the gripping action. This had appeared to indicate that both front & rear brake was in a serviceable condition.



**Photo 7** shows steering components of the Electric Scooter had revealed that its steering system was in serviceable condition & its front fork was found to be intact and undamaged. It was observed to be able to turn to full left & full right.





**Photo 8** shows steering components of the Electric Scooter had revealed that its steering system was in serviceable condition & its front fork was found to be intact and undamaged. It was observed to be able to turn to full left & full right.



**Photo 9** shows the front brake callipers, revealed that it was in a serviceable condition.



**Photo 10** shows the rear brake callipers, revealed that it was in a serviceable condition.



### **Operational Test**

10. We were able to carry out an operational test to the steering system and braking system of the Electric Scooter. The test was conducted by boarding the Electric Scooter, pushing it manually forward and backward by foot & also applying on the front & rear brake, simulating movement of the Electric Scooter, for the operational tests. The test conducted with a satisfactory result without any abnormalities observed. Hence, we were able to conclude that it was in a serviceable condition.

### **Speed Capabilities**

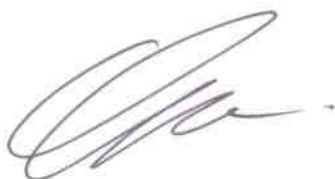
11. For this case, we were unable to carry out any constructive speed test to determine the top speed of the Electric Scooter. This was mainly due to the testing facilities that were unavailable for this particular test. Hence, we were only able to furnish the top speed that was provided only from the manufacturer's specification for this particular brand & model of Electric Scooter. See below 'Dualtron II Limited' Specification.



 <b>Product specification</b>					
Product Name	Dualtron II (Electric Scooter)				
Motor	Max 3,600W BLDC DUAL HUB MOTOR				Note
Battery type	MX	EX	EX+	LTD	Li-ion battery (Samsung or LG or PANASONIC high discharging cell)
Battery capacity	1,077Wh	1,202Wh	1,450Wh	1,657Wh	60V, 18A / 20A / 24.5A / 28A
Weight	Around 28kg	Around 28kg	Around 28kg	Around 30kg	Battery included weight Body: 23.3kg / battery: 6.7kg(LTD)
Charging time(2A)	8hr+	9hr+	10hr+	12hr+	When using default charger(2A)
Charging time(4A)	5hr+	6hr+	7hr+	9hr+	When using 2EA of default charger(2A)
Charging time(6.5A)	2.8hr+	3.3hr+	3.7hr+	4.3hr+	When using quick charger(6.5A)
Max speed(Sin)	Around 50km/h				75kg, 67.2V max charging flat load continuous riding basis *Max distance can be shorter due to the riding environment Dashboard has 3step speed adjust function, Handle bar has eco, turbo 2step adjust button. (Motors Single, Dual mode & ECO, Turbo & Dashboard 3step, Total 12type speed mode can be selected)
Max speed(Du)					
Distance (ECO)	Around 70-90km	Around 80-100km	Around 90-110km	Around 100-120km	
Gradeability	Around 47% (25°)				Weight, load condition, battery status, temperature can affect to the gradeability
Max load	120kg				
Folding	Handle post two touch double folding				Patent pending
Unfolded size	1125(LTD 1185) x 600 x 1200mm				Length x width x height Deck width 240mm
Folded size	1125(LTD 1185) x 600 x 505mm				Length x width x height Handle width 600mm
Dashboard	Multi function smart LCD dashboard (Index finger) Remained battery, TRIP, ODO, Time, Speed, and Voltage is displaying, Cruise mode can be selected.				Electric brake power can be adjusted and turn on/off The speed will be almost same as GPS speed if the PD is set to 9
Light	Dual LED headlight & taillight, brake light				DC to DC converter is built in(12V 3A output)
Suspension	Dual full suspension unit applied (rubber type)				Patented
Brake	Dual disk brake and electric brake (Two functions work together when brake lever works)				Front and rear tire common use Auto recovery charging system is applied when brake lever works : 15A charging capability of max charging current
Tire	10inch(10x2.5) 4PR wide tire				Tire width 6.5cm
Material	Frame and handle : Aviation aluminum forging alloy, 6082-T6, Shafts : SCM440, Covers : Polypropylene				

## Conclusion

12. Basing on our physical inspection of the Electric Scooter, it appears that the steering system and braking system of the Electric Scooter were all in serviceable condition.
13. 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.
14. We were unable to carry out any constructive speed test to determine the top speed of the Electric Scooter. This was mainly due to the testing facilities that were unavailable for this particular test. Hence, we were only able to furnish the top speed that was provided only from the manufacturer's specification for this particular brand & model of Electric Scooter.



**Rohaizal A. Rahim**  
Technical Investigator



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

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