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You're Ref: SJV 76Y
Our Ref: CI/TPD23000069/P

10th February 2023

Teo Wee Loong Alan
OC Transport
Corporate Services Branch, Traffic Police
10 Ubi Avenue 3
Singapore 408865

INSPECTION REPORT OF MOTOR CAR SJV 76Y

1. I refer to your request on 16th December 2022 to conduct a physical inspection of a Motor Car bearing registration number SJV 76Y (herein referred to as "**Motor Car**"), which was involved in an impounded on 21th July 2022.

2. The objective of the inspection is to determine the possible cause of if there water intrusion into the Motor Car's cabin.

3. Following the request, I had carried out a physical inspection of the Motor Car on 20th December 2022 at the premises of Sin Hwee Motor Service & Trading 3023A Ubi Road #01-59, Singapore 408717. I now set out below my observations and comments with respect to this inspection.

General Condition

4. The mileage of the Motor Car at the time of my inspection was not recorded as the battery of the Motor Car was already removed at the time of our inspection.

5. The Motor Car's exterior body was observed to be intact and did not sustain any form of damages. Only the interior cabin had sustained water intrusion damages. However, we note that there were two kinds of damages to the Motor Car, firstly was the damages cause by direct contact with water that had intrude into the cabin and secondly was indirect damages which was caused by mould built up on the surfaces of the components in the interior cabin. At the time of our inspection shows that its front left, rear left and right interior door handles and right seat interior door panel, left seat rail mechanism and its electrical components at the interior bottom portion of the Motor Car were amongst the body parts that had sustained water intrusion damages. See photo 1- 30 below.

Photo 1 shows a general view of the Motor Car's exterior front body at the time of my inspection. The Motor Car front was observed to be unaffected by the incident.

Photo 2 shows a general view of the Motor Car's exterior right body at the time of my inspection. The right portion of the Motor Car was observed to have been unaffected by the incident.

Photo 3 shows a general view of the Motor Car's exterior left body at the time of my inspection. The left portion of the Motor Car was observed to have been unaffected by the incident.

Photo 4 shows the general view of the Motor Car's exterior rear body at the time of my inspection. The Motor Car rear was observed to be unaffected by the incident.

Photo 5 shows the general view of the Motor Car's engine compartment at the time of my inspection. The Motor Car engine was observed to be unaffected by the incident.

Photo 6 shows a general view of the Motor Car's interior portion at the time of our inspection. The Motor Car was observed to have sustained direct and indirect water intrusion damages in its interior cabin. At the time of our inspection shows that its front left and right seat, interior door handles, left seat rail mechanism and its electrical components were amongst the body parts that had sustained water intrusion damages.

Photo 7 shows a general up view of the Motor Car's front left door handle. We have observed mouldy stains on its front left door handle (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 8 shows a close up view of the Motor Car's front left door handle. We have observed mouldy stains on its front left door handle (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 9 shows a general up view of the Motor Car's front right door panel. We have observed mouldy stains on its front right door panel (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 10 shows a close up view of the Motor Car's front right door panel. We have observed mouldy stains on its front right door panel (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 11 shows a general up view of the Motor Car's rear left door handle. We have observed mouldy stains on its rear left door handle (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 12 shows a close up view of the Motor Car's rear left door handle. We have observed mouldy stains on its rear left door handle (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 13 shows a general up view of the Motor Car's rear right door handle. We have observed mouldy stains on its rear right door handle (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 14 shows a close up view of the Motor Car's rear right door handle. We have observed mouldy stains on its rear right door handle (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 15 shows a general up view of the Motor Car's front left seat. We have observed mouldy stains on its front left seat (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 16 shows a close up view of the Motor Car's front left seat. We have observed mouldy stains on its front left seat (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 17 shows a general up view of the Motor Car's front left seat rail mechanism. We have observed rust built up on its front left seat mechanism due to damage by direct water intrusion into the interior cabin of the Motor Car.

Photo 18 shows a close up view of the Motor Car's front left seat mechanism. We have observed rust built up on its front left seat mechanism due to damage by direct water intrusion into the interior cabin of the Motor Car.

Photo 19 shows a close up view of the Motor Car's front left seat mechanism. We have observed rust built up on its front left seat mechanism due to damage by direct water intrusion into the interior cabin of the Motor Car.

Photo 20 shows a general up view of the Motor Car's front right seat. We have observed mouldy stains on its front right seat (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 21 shows a close up view of the Motor Car's front right seat. We have observed mouldy stains on its front right seat (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 22 shows a close up view of the Motor Car's front right seat. We have observed mouldy stains on its front right seat (circled) due to indirect water intrusion into the interior cabin of the Motor Car.

Photo 23 shows a general up view of the Motor Car's front right seat rail mechanism. We have observed that its front right seat mechanism (arrowed) did not sustain any damage by any water intrusion into the interior cabin of the Motor Car.

Photo 24 shows a general up view of the Motor Car's front right seat rail mechanism. We have observed that its front right seat mechanism did not sustain any damage by any water intrusion into the interior cabin of the Motor Car.

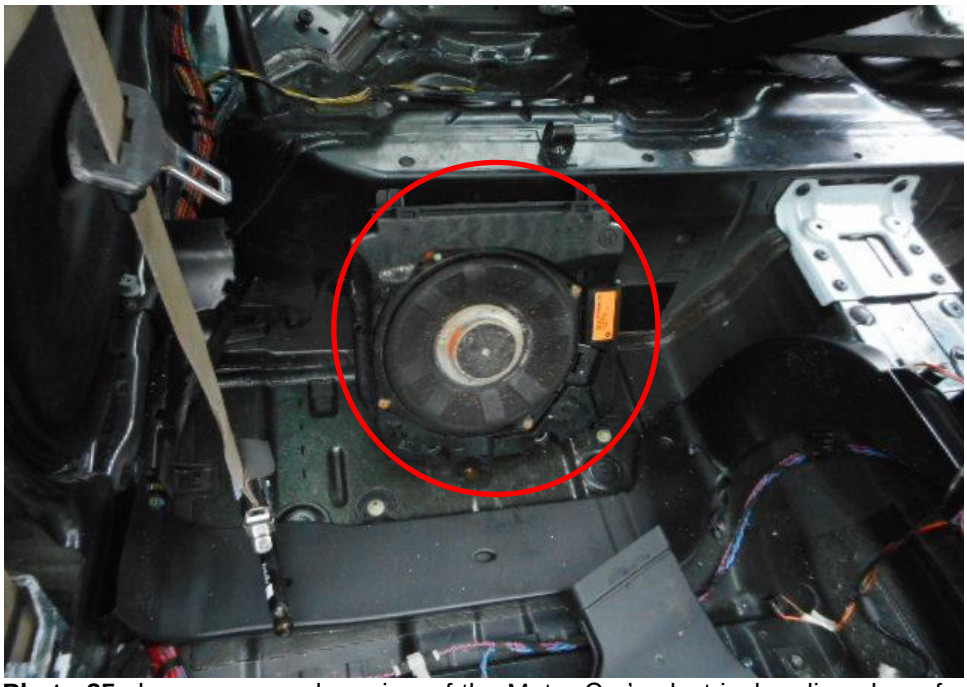

Photo 25 shows a general up view of the Motor Car's electrical audio subwoofer component (circled) located at the bottom of the front right seat. We have observed rust built up on its electrical component due to damage by direct water intrusion into the interior cabin of the Motor Car.

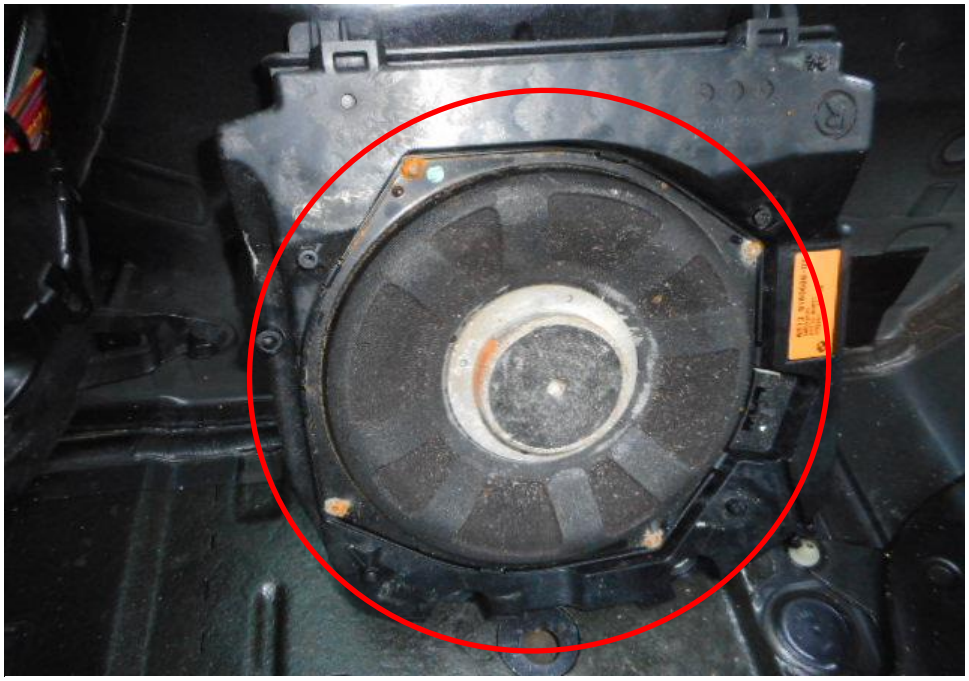

Photo 26 shows a close up view of the Motor Car's electrical audio subwoofer component (circled) located at the bottom of the front right seat. We have observed rust built up on its electrical component due to damage by direct water intrusion into the interior cabin of the Motor Car.

Photo 27 shows a general up view of the Motor Car's electrical audio subwoofer component (circled) located at the bottom of the front left seat. We have observed rust built up on its electrical component due to damage by direct water intrusion into the interior cabin of the Motor Car.

Photo 28 shows a close up view of the Motor Car's electrical audio subwoofer component (circled) located at the bottom of the front left seat. We have observed rust built up on its electrical component due to damage by direct water intrusion into the interior cabin of the Motor Car.

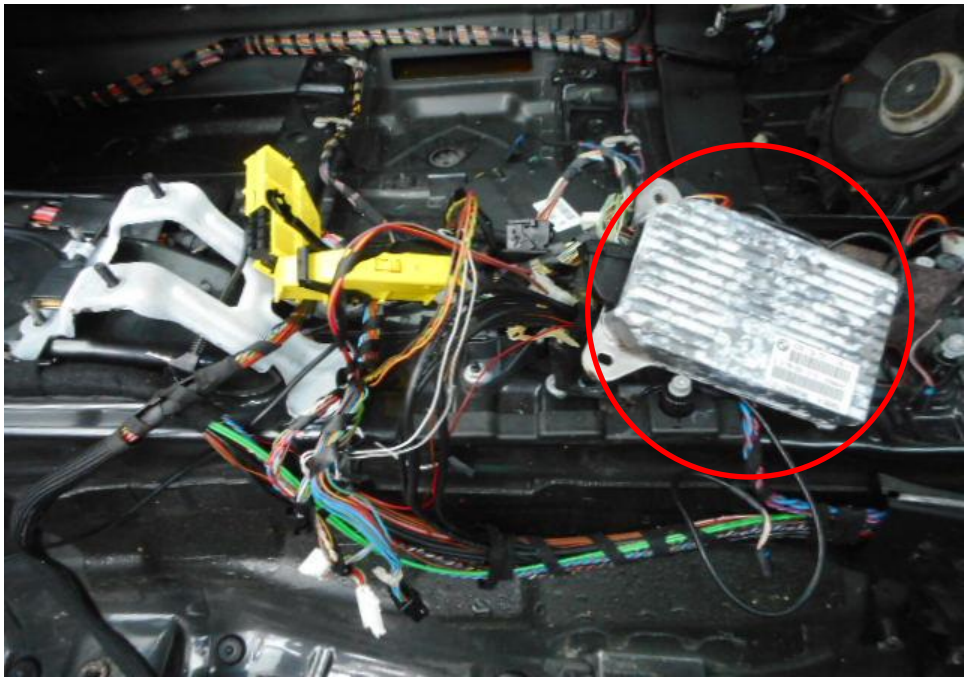

Photo 29 shows a general up view of the Motor Car's electrical Chassis control module component (circled) located at the bottom of the centre console. We have observed mould and rust built up on the electrical component due to damage by direct water intrusion into the interior cabin of the Motor Car.

Photo 30 shows a close up view of the Motor Car's electrical Chassis control module component (circled) located at the bottom of the centre console. We have observed mould and rust built up on the electrical component due to damage by direct water intrusion into the interior cabin of the Motor Car.

Investigation and Technical Analysis

6. For this particular case, at the time of inspection we notice that there was no water intrusion damages to the interior cabin roof material. We have conducted a water leak test to the door seals of the Motor's Car to see if the water intrusion had enter from the door or roof seals into the interior cabin of the Motor Car's. On top of the water leak test it was also raining heavily.

7. For the water leak test, we had placed dry paper into the floor of the interior cabin and poured water onto the exterior door seals of the Motor Car to see if there was any water intrusion. Before the water leak test we had taken before and after videos and photos of the interior cabin roof material and the paper that was placed into the floor of the interior cabin of the Motor Car where the seats and electrical components was at. After the water leak test, it appears that there was no water intrusion sign to the interior cabin of the Motor Car and the interior cabin roof material and the paper placed had remained dry. See photos 31 – 34 below.

Photo 31 shows a general up view of the Motor Car's interior cabin roof material located at the top of the interior. We have observed no water intrusion damages to the interior cabin roof material of the Motor Car at the time of inspection and also after the water leak test.

Photo 32 shows dry papers (red circle) that was placed into the floor of the interior cabin where the seats and electrical components was at and before water was poured onto the exterior door seals of the Motor Car to see if there was any water intrusion into the Motor Car

Photo 33 shows water leak test where (arrowed) water was poured onto the exterior door seals of the Motor Car to see if there was any water intrusion into the Motor Car

Photo 34 shows dry papers (red circle) that was placed into the floor of the interior cabin where the seats and electrical components was at and after water was poured onto the exterior door seals of the Motor Car and the papers remained dry and there was no water intrusion into the Motor Car

Others

8. We have conducted our own research to this particular brand and model of the Motor Car and we noted that this Motor Car was offered in left- and right-hand drive for the steering column depending on country the Motor Car is imported to. The manufacture has built the Motor Car's chassis to allow the steering column to be placed either on the front left and right side firewall of the Motor Car. For this particular brand and model of the Motor Car the steering column is placed on the right-side firewall of the Motor Car. In this case to cover up the hole in the firewall where there is no steering column which was the left side, the manufacture had designed a plastic steering column cover and sound proofing cover to cover up the hole on the firewall to stop dirt and water from entering the interior cabin of the Motor Car these parts would fail overtime due to wear and tear thus allowing dirt and dust to enter the interior cabin from the firewall. See diagram 1 below.

9. For this particular case, plastic steering column cover and sound proofing cover to cover up the hole was on the left firewall. We observed that the water damages on the left seat rail mechanism and the electrical subwoofer that was below the left seat had sustained more water intrusion damages then to the right side. Refer to photos 15 – 28 above.

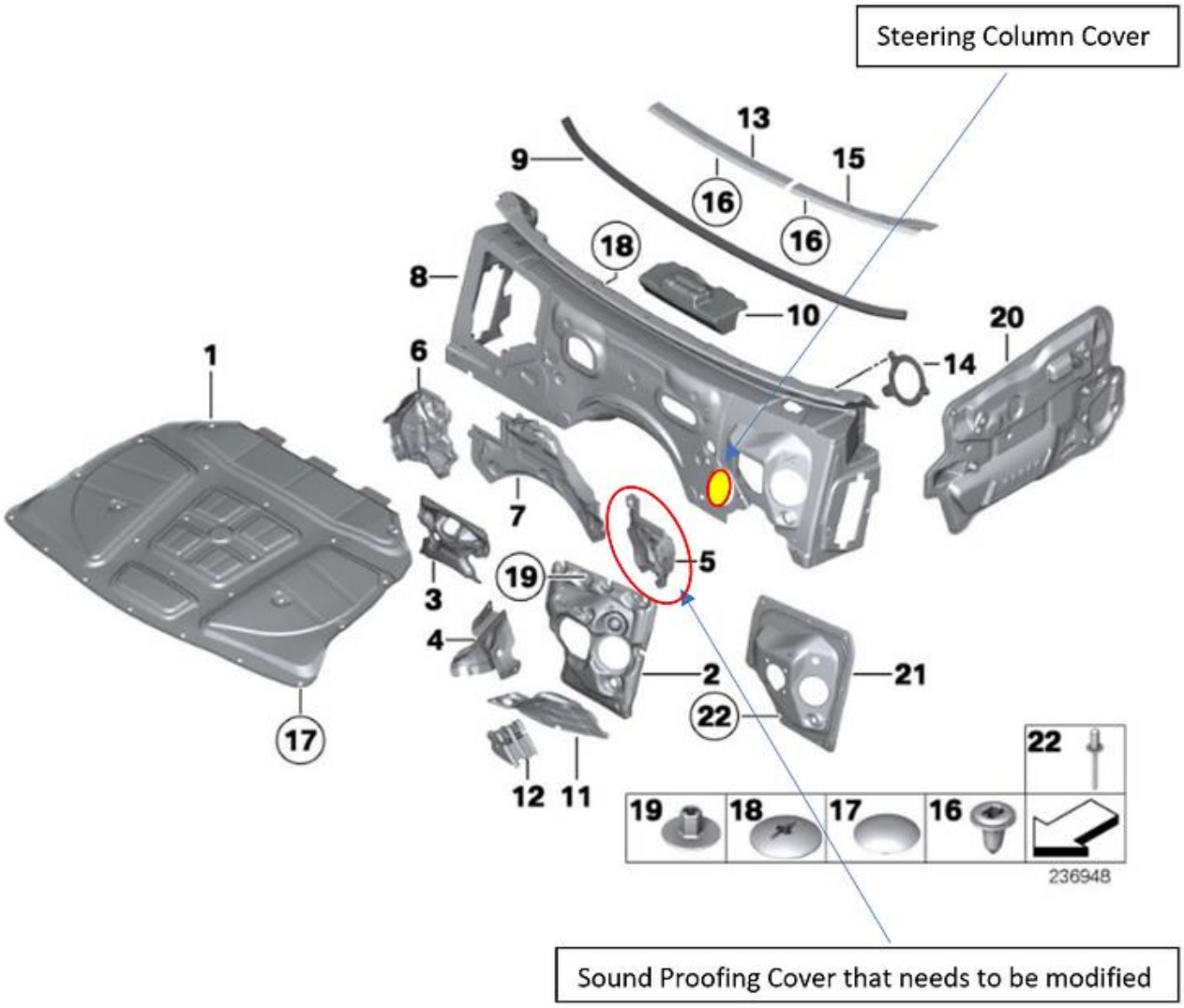

Diagram 1 shows the diagram of the steering column cover (yellow circle) and sound proofing cover (red circle) is located at the left side firewall the Motor Car. We are in view the water intrusion to the Motor Car had entered from these components into the interior cabin of the Motor Car.

Conclusion

10. Investigations to the Motor Car, we are in view that the direct and indirect water intrusion damages caused by the built up of rust, corrosion and mould built up on the its front left, rear left and right interior door handles and right seat interior door panel, left seat rail mechanism and its electrical components at the interior bottom portion was caused by water entering the left firewall through plastic steering column cover and sound proofing cover which was used to cover up the hole on the firewall.

11. For this particular case, it was purely a case of wear and tear to the plastic material of the steering column cover and sound proofing cover that had fail overtime due to wear and tear which had allowed water to intrude into the interior cabin of the Motor Car through the left firewall resulting in the water damages to the various interior components of the Motor Car during the time when the Motor Car was impounded in the open in Traffic Police Vehicle Pound for investigations.

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Technical Investigator

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