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: EG 4994J
Our Ref : CI/TP22012275/D

08 December 2022

Tan Bee Hoon
35 Sennett Road
Singapore 466814

AUTOMOBILE INSPECTION REPORT OF MOTOR CAR EG 4994J

1. I refer to your request on 07 November 2022 to conduct a physical inspection of a motor car bearing registration number EG 4994J (herein referred to as "**Motor Car**").

2. The purpose of this inspection was to primarily determine: -

   a) whether the manual transmission assembly on the Motor Car was fitted in a secure manner that will not affect the structural integrity of the Motor Car; and

   b) whether there was any operational issue(s) to the manual transmission system of the Motor Car.

3. Following the request, I had carried out a physical inspection of the Motor Car on 01 December 2022 at the premises of No. 172 Woodlands Industrial Park E7, Singapore 757872. I also conducted a short test drive of the Motor Car during this inspection.

4. I now set out below my observations and comments with respect to this inspection and test drive.

Inspection of the Motor Car

5. The following general information of the Motor Car was first recorded at the time of my inspection: -

Vehicle Registration No.	: EG 4994J
Make / Model	: Honda Integra 2.0A
Chassis No	: JHMDC54506S201183
Year of Registration	: 2006 (August)
Mileage	: 119,319km

6. The Motor Car was fitted with a 5-speed manual transmission assembly. The input side of the transmission assembly is bolted to the crankshaft side of the engine block. The left and right drive shafts were observed to be securely fitted from the main shaft, located inside the transmission assembly, to the front left wheel and front right wheel respectively. There was also no crack and/or hole observed on the housing of the transmission assembly.

7. The transmission assembly of the Motor Car was supported by 3 brackets. One at the front of the transmission assembly, one at the rear of the transmission assembly while the other was at the left side of the transmission assembly. The bracket at the front and rear of the transmission assembly was mounted onto the engine cross member while the bracket at the left side was mounted onto the left side front chassis, adjacent to the Motor Car's left side front wheel house. The 3 brackets are with rubber bushings, which absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket and correspondingly also minimise any stress to the engine crossmember and left side front chassis that these brackets are mounted onto.

8. The gear selector cables from the transmission assembly to the gear shifter of the Motor Car was observed to be securely fitted. The gear selector cables connect to the gear shifter in the interior compartment of the Motor Car through the floorboard. See photo 1 – 11 below.

Photo 1 shows the Motor Car being hoisted up at the time of my inspection. The mileage of the Motor Car recorded was 119,319km.

Photo 2 shows a general view of the transmission assembly (arrowed) that was fitted on the Motor Car. The input side of the transmission assembly is bolted to the crankshaft side of the engine block. The left and right drive shafts were securely fitted from the main shaft, located inside the transmission assembly, to the front left wheel and front right wheel respectively. There was no crack and/or hole observed on the housing of the transmission assembly.

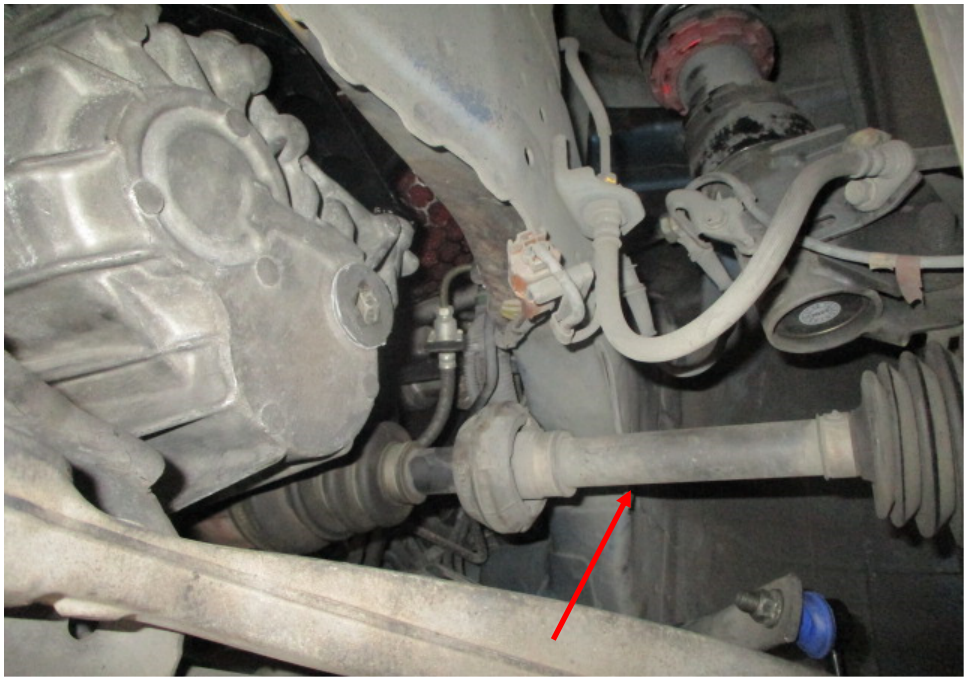

Photo 3 shows the left drive shaft (arrowed) of the Motor Car. The left and right drive shafts were observed to be securely fitted from the main shaft, located inside the transmission assembly, to the Motor Car's front left wheel and front right wheel respectively.

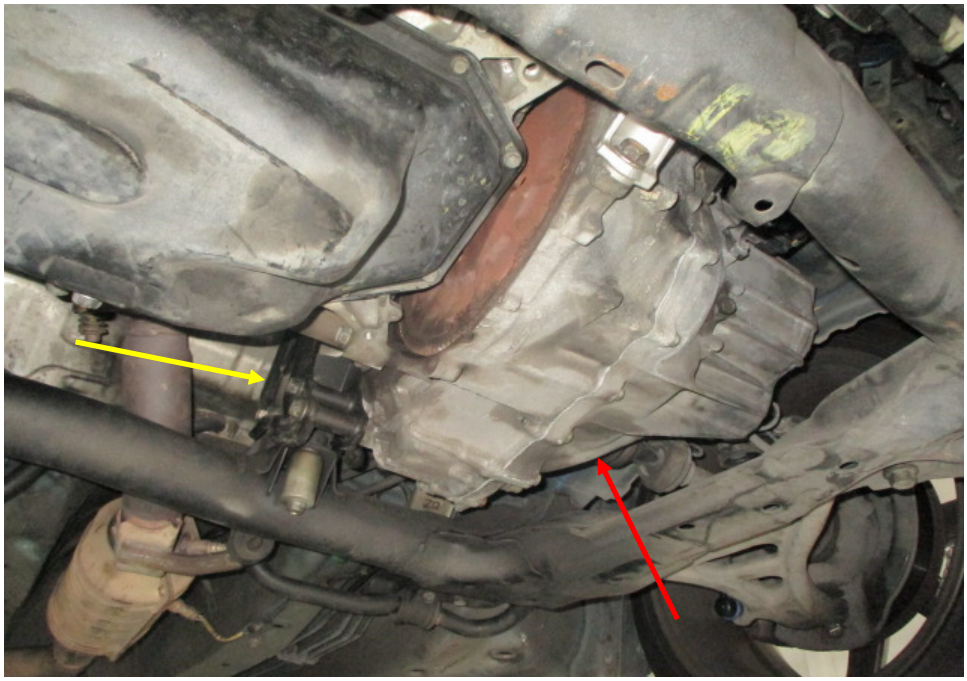

Photo 4 shows another view of the transmission assembly (red arrow) that was fitted on the Motor Car. This was at the input side where the transmission assembly is bolted onto the crankshaft side of the engine block. The transmission assembly of the Motor Car was supported by 3 brackets. One at the front of the transmission assembly, one at the rear of the transmission assembly (yellow arrow) while the other was at the left side of the transmission assembly.

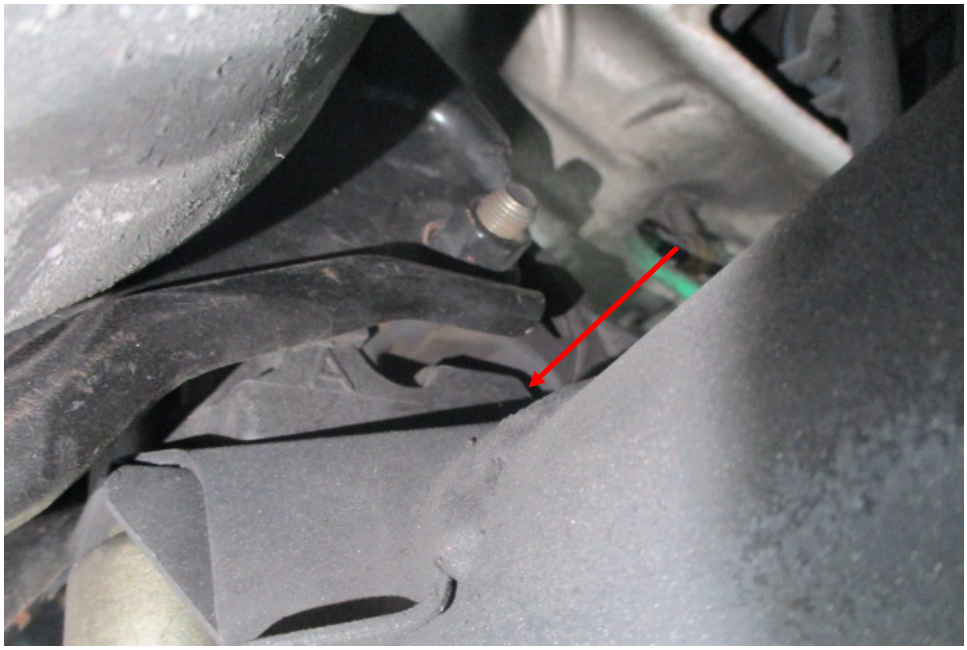

Photo 5 shows the bracket supporting the rear of the Motor Car's transmission assembly. This bracket was mounted onto the engine cross member. The bracket was with rubber bushings (arrowed) that absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket and correspondingly also minimise any stress to the engine crossmember.

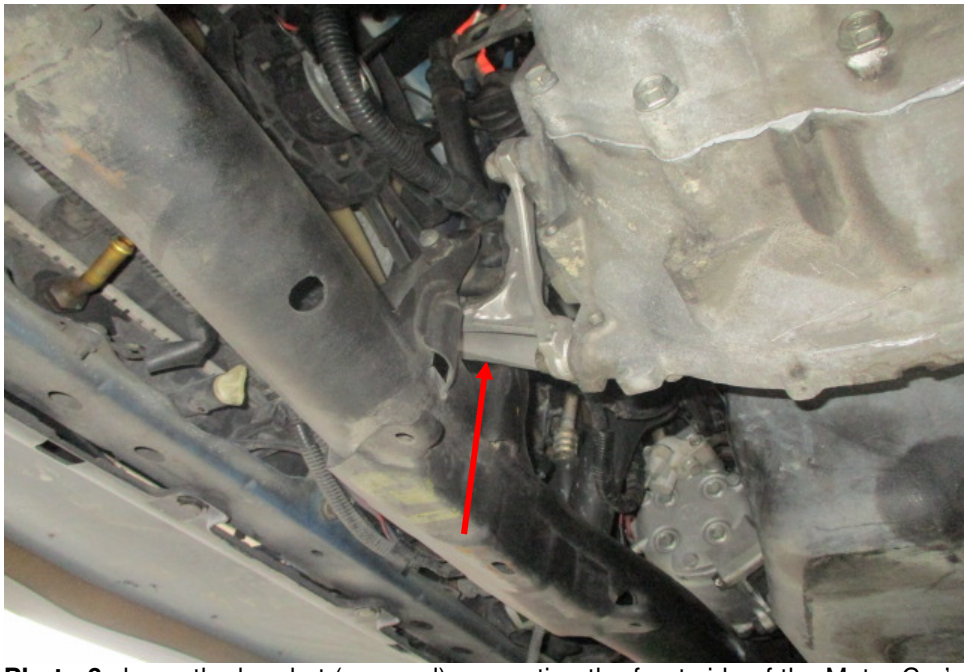

Photo 6 shows the bracket (arrowed) supporting the front side of the Motor Car's transmission assembly. This bracket was mounted onto the engine cross member. The bracket was with rubber bushings that absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket and correspondingly also minimise any stress to the engine crossmember.

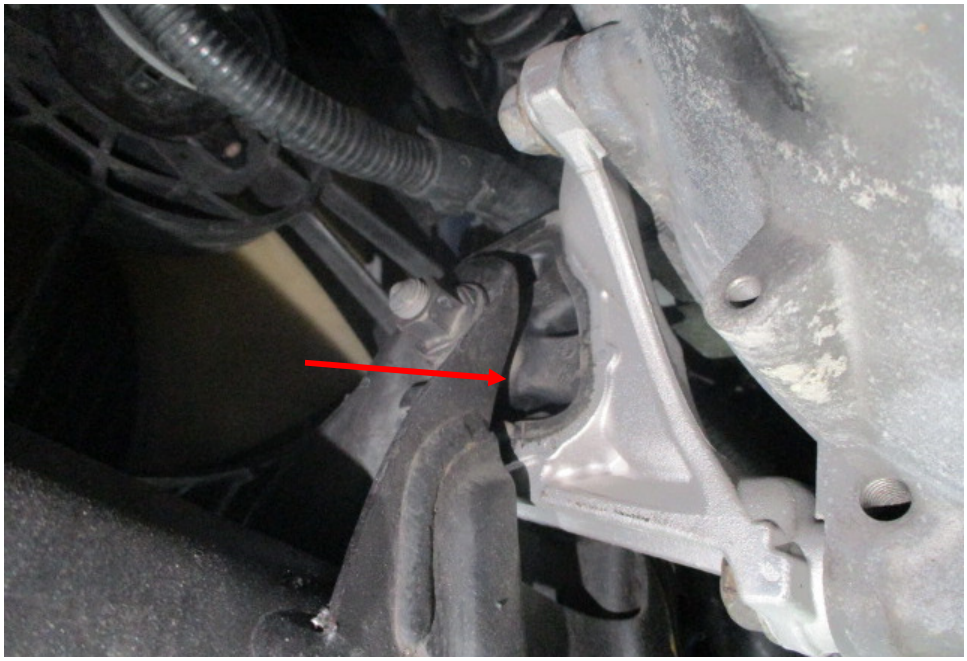

Photo 7 shows a closer view of the bracket supporting the front of the Motor Car's transmission assembly. This bracket was mounted onto the engine cross member. The bracket was with rubber bushings (arrowed) that absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket and correspondingly also minimise any stress to the engine crossmember.

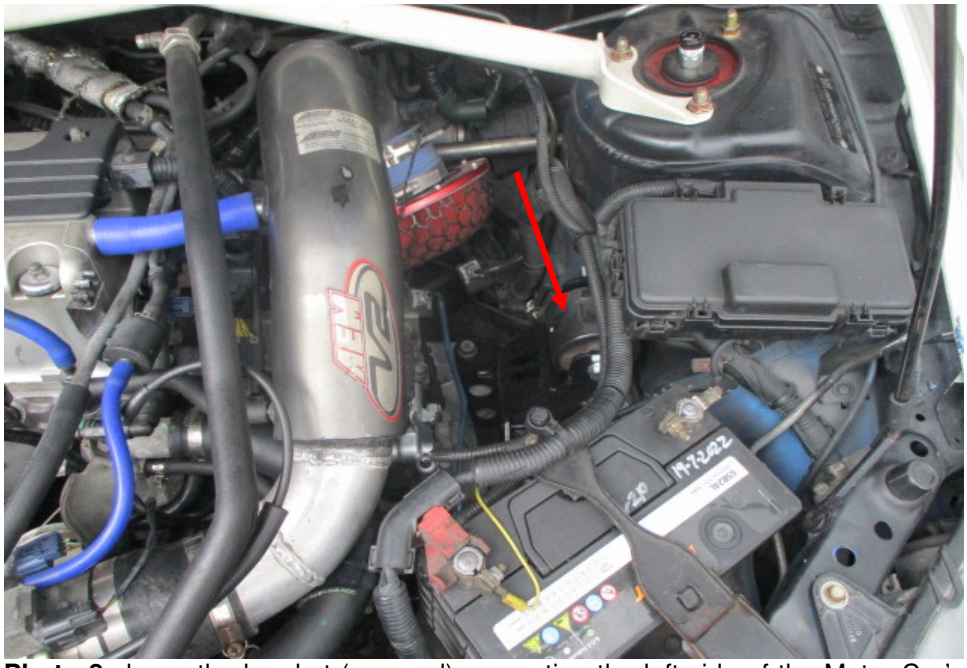

Photo 8 shows the bracket (arrowed) supporting the left side of the Motor Car's transmission assembly. This bracket was mounted onto the left side front chassis, adjacent to the left side front wheel house of the Motor Car. The bracket was with rubber bushings that absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket and correspondingly also minimise any stress to the engine crossmember.

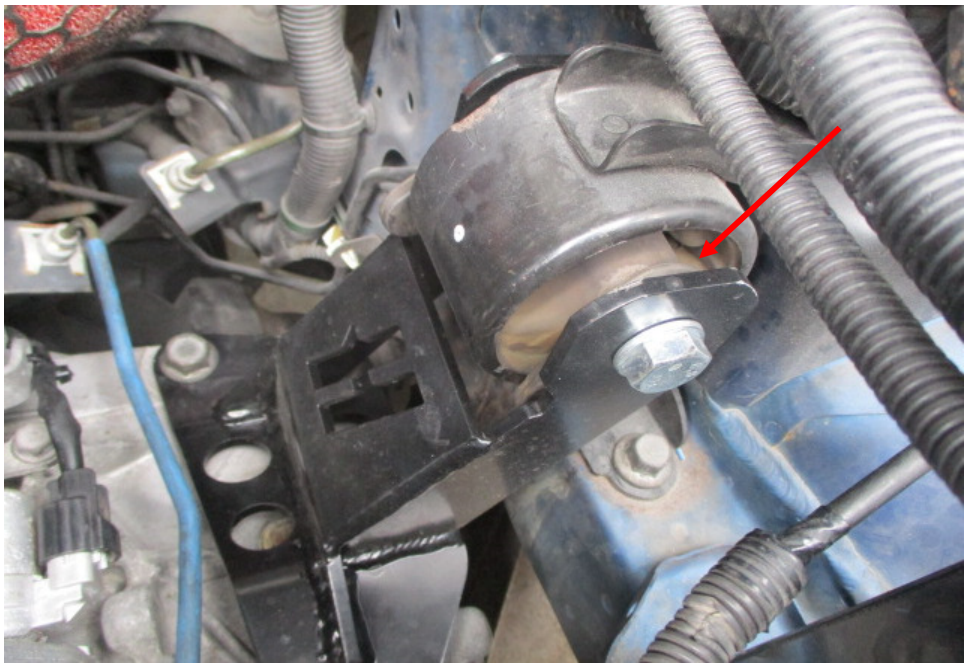

Photo 9 shows a closer view of the bracket supporting the left side of the Motor Car's transmission assembly. This bracket was mounted onto the left side front chassis, adjacent to the left side front wheel house of the Motor Car. The bracket was with rubber bushings (arrowed) that absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket and correspondingly also minimise any stress to the engine crossmember.

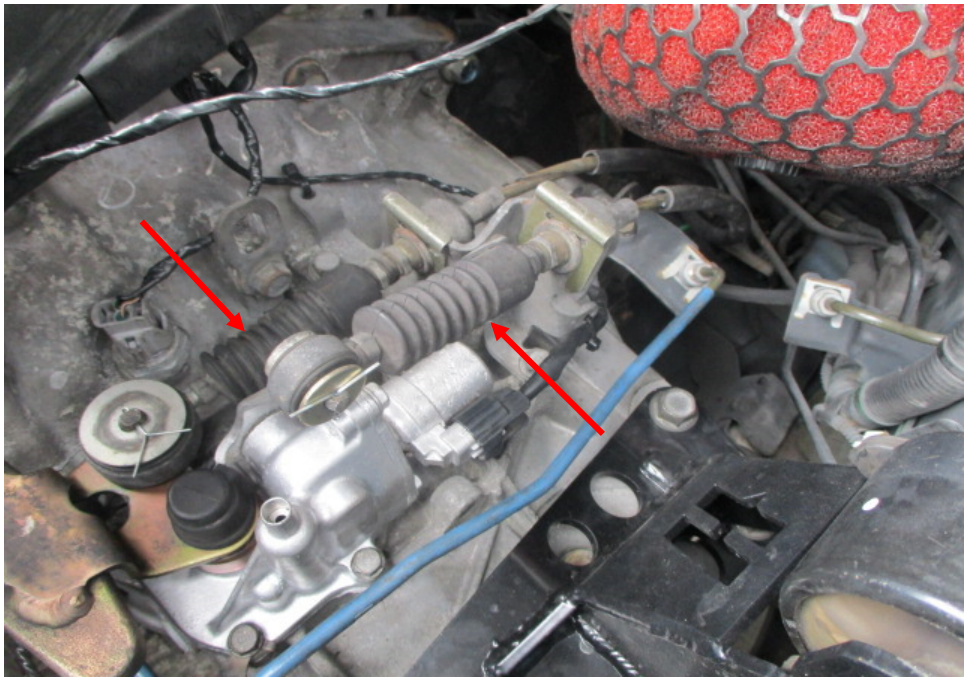

Photo 10 shows the gear selector cables (arrowed) from the transmission assembly to the gear shifter of the Motor Car. The gear selector cables were observed to be securely fitted on the underside of the Motor Car. These gear selector cables connect to the gear shifter in the interior compartment of the Motor Car through the floorboard.

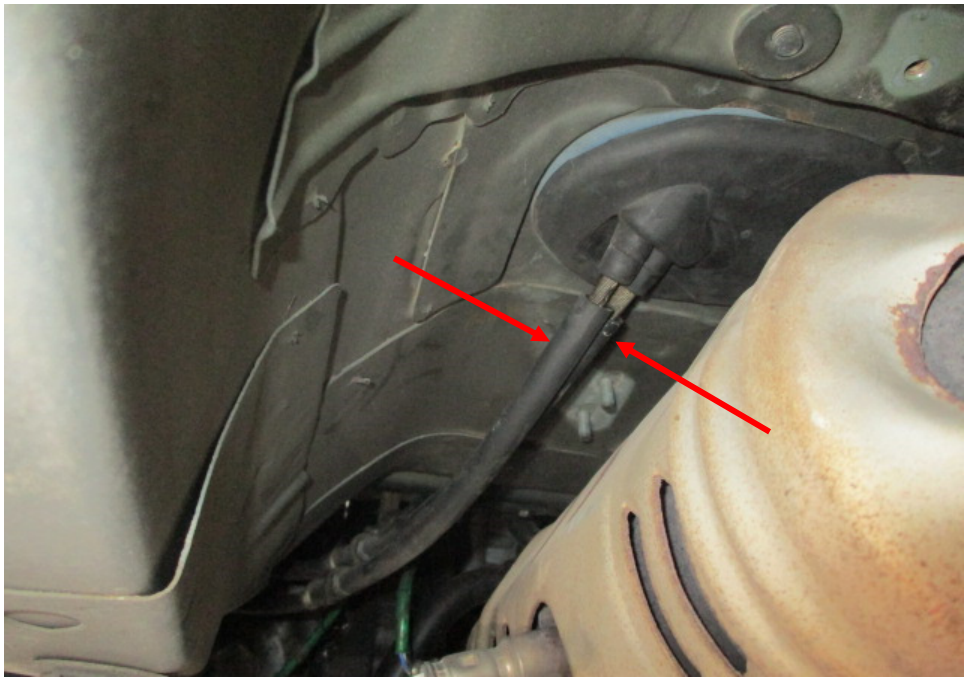

Photo 11 shows the gear selector cables (arrowed), at the side where it connects to the gear shifter in the interior compartment of the Motor Car through the floorboard.

9. The transmission system of the Motor Car was operated by a clutch pedal, for engaging and disengaging the transmission gears, and a gear shifter for manually upshifting and downshifting of the transmission gear to be engaged. See photo 12 & 13 below.

Photo 12 shows the gear shifter (arrowed) that was fitted on the Motor Car, for manually selecting the transmission gear to be engaged. The gear selector cables from the underside of the Motor Car (refer to photograph 10 & 11 above) connects to this gear shifter through the floorboard.

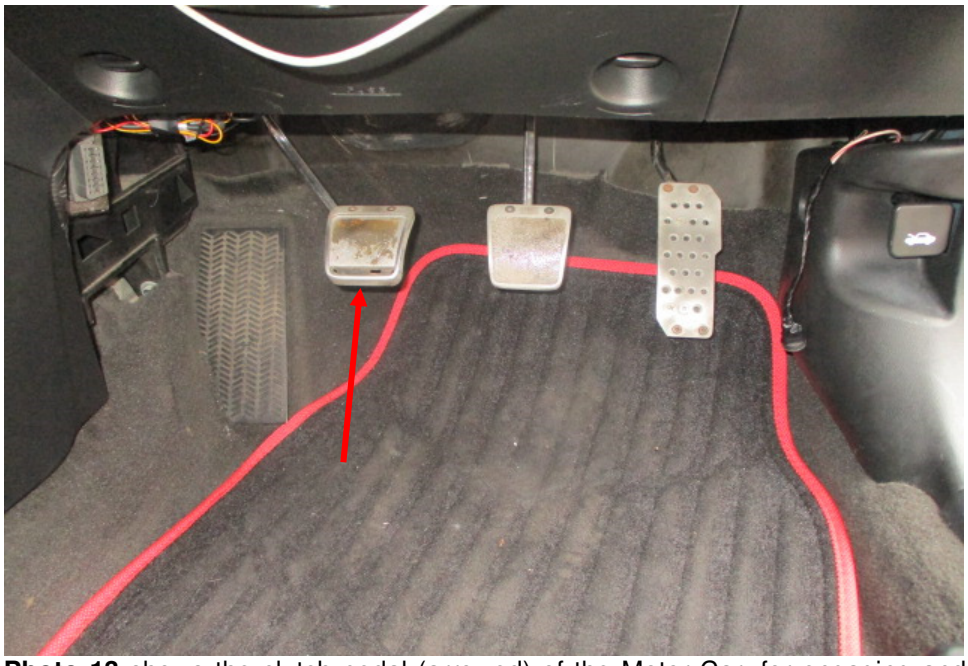

Photo 13 shows the clutch pedal (arrowed) of the Motor Car, for engaging and disengaging the transmission gears.

10. I subsequently test drove the Motor Car to primarily determine whether there was any operational issue(s) to its manual transmission system. The Motor Car was driven along the arterial roads surrounding Woodlands Industrial Park E7.

11. The general performance of the transmission system of the Motor Car was satisfactory throughout the Motor Car's short test drive. Operationally, I did not find any abnormal behaviour of the transmission system. I was able to engage the different transmission gears without any significant difficulty. Selecting the required transmission gear by manually upshifting and downshifting of the gear shifter was relatively smooth. The Motor Car was also able to reverse when the gear was manually shifted to reverse. The mileage of the Motor Car at the end of the test drive was 119,322km.

12. In summary, the transmission of the Motor Car was found to be secured properly. It was observed to be supported by 3 brackets with all related components forming a complete manual transmission system, securely fitted/attached.

13. The operating condition of the Motor Car's transmission system was found to be satisfactory during a test drive of the Motor Car that I had carried out.

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