

Your Ref: SGV 9594U
Our Ref : CI/TP21007549/D

12 July 2021

Muhammad Ilyas Bin Samsudin

Block 418 Pasir Ris Drive 6
#08-289
Singapore 510418

AUTOMOBILE INSPECTION REPORT OF MOTOR CAR SGV 9594U

1. I refer to your request on 01 July 2021 to conduct a physical inspection of a motor car bearing registration number SGV 9594U (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 07 July 2021 at the premises of No. 2 Kaki Bukit Avenue 2 #02-06 Kaki Bukit AutoHub, Singapore 417921. 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.	: SGV 9594U
Make / Model	: BMW 320i
Chassis No	: WBACB22090FA05355
Year of Registration	: 1992 (April)
Mileage	: N.A.

6. The Motor Car was fitted with a 5-speed manual transmission assembly. The front (input) side of the transmission is bolted to the crankshaft side of the engine block while the rear (output) side of the transmission was connected to the propeller shaft, which links to the rear axle of the Motor Car. A bracket mounted to the underside of the Motor Car's floorboard, via bolts and nuts, supports the rear (output) side of the transmission. A pair of rubber bushings, sitting between the transmission and this bracket, absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket.
7. The gear selector fork from the transmission to the gear shifter of the Motor Car was observed to be securely fitted on the underside of the Motor Car. The gear selector fork connects to the gear shifter in the interior compartment of the Motor Car through the floorboard.
8. The transmission of the Motor Car was operated by a clutch pedal, for engaging and disengaging the transmission gears, and a manual gear shifter for manually selecting the transmission gear to be engaged. See photo 1 – 9 below taken during my inspection of the Motor Car.



Photo 1 shows the Motor Car hoisted up at the time of my inspection.



Photo 2 shows a general view of the transmission (arrowed) that was fitted on the Motor Car. The front (input) side of the transmission is bolted to the crankshaft side of the engine block while the rear (output) side of the transmission was connected to the propeller shaft, which links to the rear axle of the Motor Car.

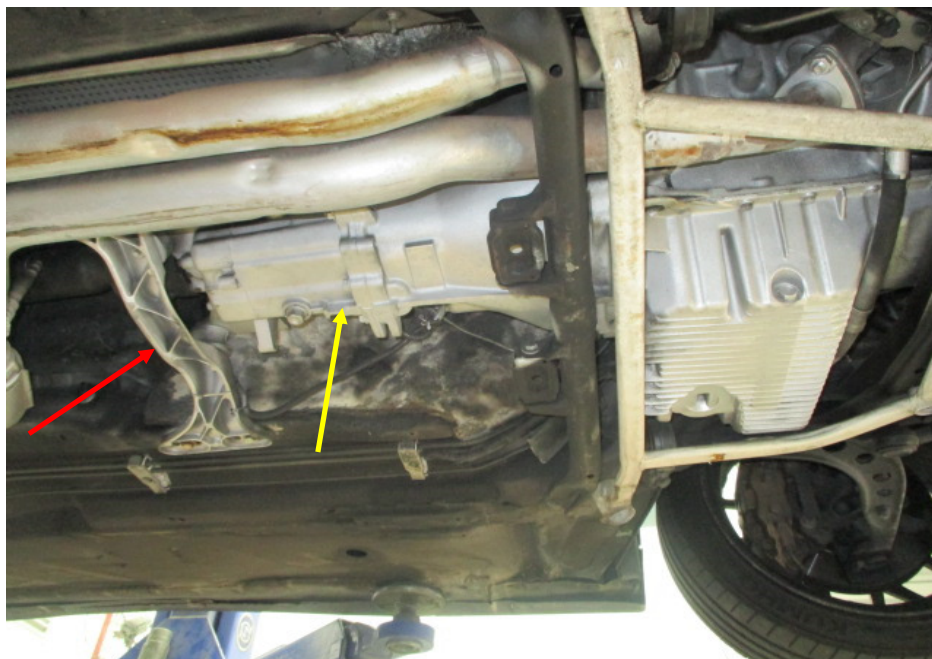


Photo 3 shows a general view of the transmission (yellow arrow) that was fitted on the Motor Car. A bracket (red arrow) was observed to be mounted to the underside of the Motor Car's floorboard of the Motor Car, via bolts and nuts. The bracket supports the rear (output) side of the transmission.

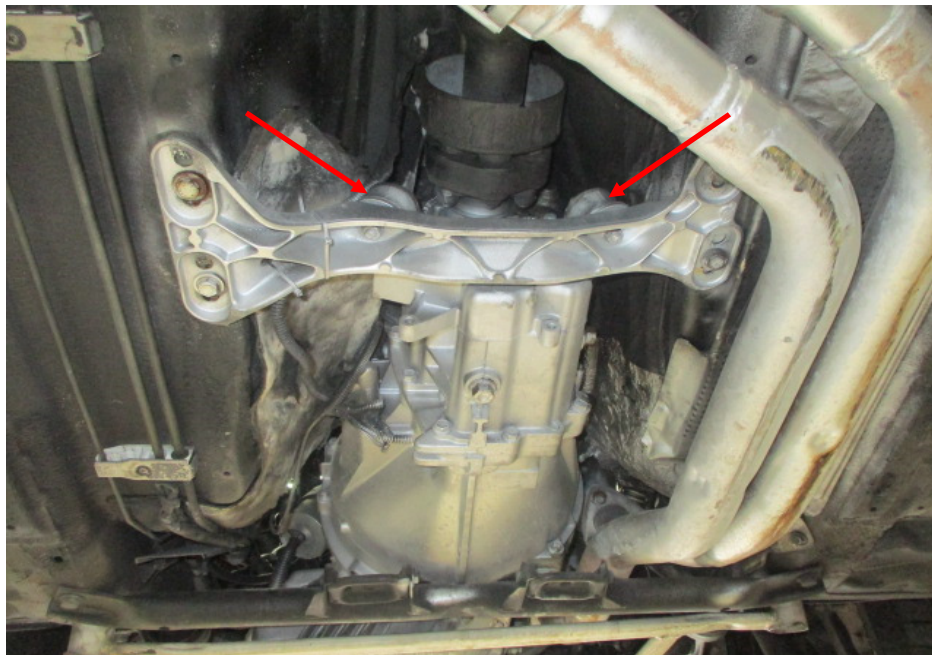


Photo 4 shows a closer view of the bracket that was mounted to the underside of the Motor Car's floorboard, via bolts and nuts. The bracket supports the rear (output) side of the transmission. A pair of rubber bushings (arrowed) absorbs any vibrations arising from the rotation of the transmission gears, minimising any stress to the bracket.

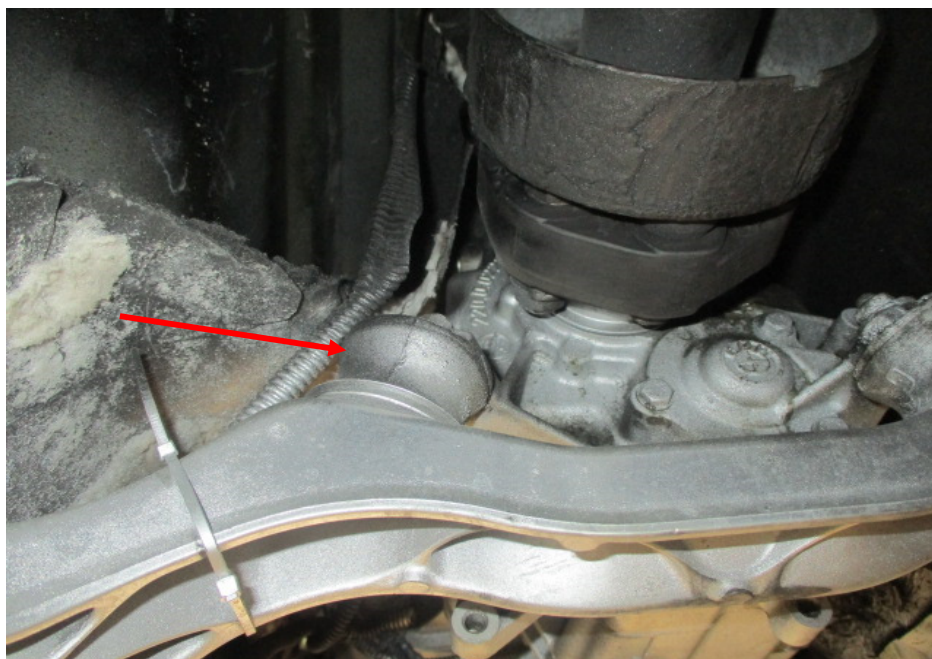


Photo 5 shows a closer view of one of the 2 rubber bushings (arrowed). The rubber bushing sits between the transmission and the bracket, absorbing any vibrations arising from the rotation of the transmission gears. This minimises any stress to the bracket.



Photo 6 shows a closer view of the other rubber bushing (arrowed). The rubber bushing sits between the transmission and the bracket, absorbing any vibrations arising from the rotation of the transmission gears. This minimises any stress to the bracket.



Photo 7 shows the gear selector fork (arrowed) from the transmission to the gear shifter of the Motor Car. The gear selector fork was observed to be securely fitted on the underside of the Motor Car. This gear selector fork connects to the gear shifter in the interior compartment of the Motor Car through the floorboard.



Photo 8 shows the gear shifter (arrowed) that was fitted on the Motor Car, for manually selecting the transmission gear to be engaged. The gear selector fork from the underside of the Motor Car (refer to photograph 7 above) connects to this gear shifter through the floorboard.



Photo 9 shows the clutch pedal (arrowed) for engaging and disengaging the transmission gears.

9. 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 within the premises of Kaki Bukit AutoHub.
10. 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.
11. In general, the transmission assembly of the Motor Car was found to be secured properly. It was not mounted onto the chassis body or any integral body part of the Motor Car. The structural integrity of the Motor Car is not compromised by the fitment of this transmission assembly. Overall, the operating condition of the Motor Car's transmission system was satisfactory throughout the Motor Car's test drive.

**Ang Bryan Tani***AMSOE, AMIRTE, AFF SAE, M.MATAI, AFF.Inst.AEA**Senior Technical Investigator**Technical Investigation & Accident 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.