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Vehicle Idle Gear Rattle Evaluation Procedure

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Foreword—Idle gear rattle is a disturbance which can exist with manual transmission equipped vehicles and which can occur when the vehicle is parked, the transmission is in neutral, the clutch is engaged, and the engine is at idle. The noise is a repetitive metallic tapping sound generated by the impacting of transmission gear teeth. This is caused by minute fluctuations in the engine flywheel rotational velocity. These fluctuations occur at the engine’s firing frequency and are due to torque variances caused by the compression stroke and power stroke of the internal combustion engine. A number of variables can affect the severity of idle gear rattle. These variables should be noted when testing vehicles, and they can be investigated as a means for reducing the disturbance. See 3.7.

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1.

Scope—This SAE Standard describes a procedure to be used to evaluate a disturbance known as “idle gear rattle” which can exist in vehicles equipped with manual transmissions and clutches. Other types of noises associated with operation at idle are also briefly described.

1.1

Purpose—This SAE Standard defines a procedure, which can be used to obtain meaningful standardized comparisons of idle gear rattle among several vehicles. The procedure can be used in evaluating field complaints in current model vehicles or it can be used in the development of future models. The purpose is to promote commonization of the procedure and results.