SURFACE VEHICLE INFORMATION REPORT

J2641™ NOV2015

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Superseding J2641 NOV2007

Stationary Sound Testing of Snowmobiles, Procedure and Enforcement Issues

RATIONALE

This new revision is proposed to implement changes required by the revision of SAE J2567. Those changes are mainly affecting the vehicle operation condition during the test outlined in SAE J2567. An additional section (6.5) is added to inform that snowmobiles that comply with the Snowmobile Safety Certification Committee (SSCC) have an exhaust silencer marking on the original equipment exhaust silencer.

1. SCOPE

This SAE Information Report provides basic information about the issues surrounding the administration of stationary, infield sound testing of snowmobiles. The information provided herein is meant to enhance safety, improve the environment and promote uniform testing.

1.1 Purpose

The purpose of this document is to identify problems in the administration and in safety of infield, snowmobile stationary sound testing, as described in SAE J2567.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue of SAE publications shall apply.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

SAE J33 Snowmobile Definitions and Nomenclature - General

SAE J192 Maximum Exterior Sound Level for Snowmobiles

SAE J1161 Operational Sound Level Measurement Procedure for Snowmobiles

SAE J2567 Measurement of Exhaust Sound Levels of Stationary Snowmobiles

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: http://www.sae.org

2.2 Related Publications

The following publications are provided for information purposes only and are not a required part of this SAE Technical Report.

2.2.1 SSCC Publication

Available from the Snowmobile Safety Certification Committee, 1640 Haslett Road, Suite 170, Haslett, MI 48840.

SSCC-11 Snowmobile Safety and Certification Program

2.2.2 Motorcycle Industry Council Publication

Available from Motorcycle Industry Council, Inc., 2 Jenner St., Suite 150, Irvine, CA 92718-3812.

Correlation of Off-Highway Motorcycle Sound Test Methods, EPA/SAE

Evaluation of Stationary and Moving Motorcycle Noise Test Methods for Use in Proposed Regulations (McDonnell Douglas Astronautics Company West) Dec '75

3. DEFINITIONS

3.1 SNOWMOBILE

A self-propelled vehicle intended for off-road travel primarily on snow, having a curb weight of not more than 450 kg (1000 lb), driven by a track or tracks in contact with the snow, steered by a ski or skis in contact with the snow, with the following special classes:

3.1.1 Class I – Competition Snowmobile

A snowmobile intended only for competition as stated and identified publicly by the manufacturer.

3.1.2 Class II – Children's Snowmobile

A snowmobile intended only for use by children, as stated and identified publicly by the manufacturer. For a more detailed definition, see SAE J1038.

4. TECHNICAL REQUIREMENTS

4.1 Personnel

The administration of an infield, stationary sound measurement, as in SAE J2567, would require a minimum of two persons with the possibility of a third, in some instances. One person will be required to straddle the machine and operate the speed control while simultaneously holding the brake to maintain the position of the unit relative to the microphone. The second person will be required for the reading and recording of the sound level measurement. A third person may be required to ascertain the engine revolutions by means of an external tachometer on those units not equipped with an engine revolution counter. Other personnel may be required to block or guide traffic if this procedure is carried out trailside or in congested areas.

4.2 Training

The person or persons operating the sound meter would need to be trained in its' operation/ calibration so as not to obtain improper readings, lessening the effectiveness of the stationary sound test procedure in enforcement. The person straddling the machine should have a background in snowmobile operation and a working familiarity with the controls and systems of the machines reasonably expected to be encountered in use on the trail system. If the use of an external tachometer is necessary, one or more persons of the testing group would need to have been familiarized with its' operation prior to performing any sound measurement procedures.

5. MACHINE CONSIDERATIONS

5.1 Drive Belts and Clutches

Various engine types and sizes along with different applications dictate that not all snowmobiles will be able to be successfully tested at the 2500 r.p.m. of SAE J2567. Some fan cooled 2 stroke snowmobiles and some 4 stroke snowmobiles have partial clutch engagement at or before 2500 r.p.m. If testing to SAE J2567 is attempted on machines with lower than 2500 r.p.m. engagement speeds, drive belt damage may be incurred.

5.2 Machine Modification

The ability of an individual to modify clutch engagement r.p.m. may be used to avoid enforcement efforts by raising or lowering engagement speeds to change the sound level.

6. SOUND TESTING CONSIDERATIONS

6.1 Sound Test Correlation

There has been no correlation established between moving sound measurement testing (i.e. SAE J1161 and SAE J192) with the stationary test of SAE J2567. (ref. Section 2.1.3). There is no established or identifiable “ratio” or conversion of sound levels from moving tests that can be correlated to stationary (J2567) testing.

6.2 Environmental Effects

Testing by the SAE Snowmobile Sound Level Task Force has shown that there are a number of environmental issues that can have an effect on sound level measurement. These include: changes in barometric pressure, altitude, ambient temperature, snow depth, moisture content and compaction and test location. These issues should be taken into consideration when setting sound limits for enforcement purposes, allowing sufficient tolerance to compensate for their effects.

6.3 Conducting the SAE J2567 Test

The ability to maintain a steady state 2500 r.p.m. and the ability to maintain the machine in position to the microphone by the test team member can affect the reading of the sound meter. If the engine r.p.m. is allowed to fluctuate or the machine moves away from the microphone while the meter reading is taking place, it may not be a true reading.

6.4 Inability to Conduct the SAE J2567 Procedure

There could be machines that have full clutch engagement below the SAE J2567, 2500 r.p.m. engine test speed. These units may either overcome the available braking forces or break the drive belt before reaching the required steady state r.p.m.

6.5 SSCC Exhaust Silencer Marking

Starting with model year 2002, snowmobiles that are compliant with SSCC noise limit have a marking on the exhaust silencer that consist of the letters “SSCC Certified” with the manufacturers name underneath. Unless the silencer was tampered or is defective, this marking should assure that the vehicle will produce the noise level at which it was certified by the manufacturer. Snowmobiles from MY2002 and newer that do not have this marking on their exhaust silencer should be considered to have an aftermarket silencer that may generate a higher sound pressure level than the OEM part, but could meet noise level prescribed when tested following the general recommendations of SAE J2567.