ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD
AMENDING AND CREATING RULES

The State of Wisconsin Natural Resources Board proposes an order to amend NR 6.08(1)(title) and (c), (4) and (6) and to create NR 6.03(1m) and 6.08(1m) relating to snowmobile noise testing procedures

LE-40-03

Analysis Prepared by the Department of Natural Resources

Statutory authority: s. 227.11(2)(a), Stats.
Statutes interpreted: s. 350.09(7), Stats.

Current state law requires snowmobiles to meet certain noise levels. For snowmobiles that are manufactured and sold or offered for sale in Wisconsin, the noise limit has been set at 78 decibels since 1975. For snowmobiles that the operated by the consumer in Wisconsin, noise emissions are limited to excessive or unusual levels.

The proposed rule will provide a field-friendly test procedure (stationary test) for testing snowmobile noise emissions on consumer machines. The proposed test procedures have been adopted by the Society of Automotive Engineers for law enforcement as a means to identify loud and obnoxious snowmobiles in the field. The proposed rule will also provide a definition for excessive or unusual noise which is currently undefined.

SECTION 1. NR 6.03(1m) is created to read:

NR 6.03(1m) "Excessive or unusual noise" means noise as measured by the procedures herein that is emitted above 82 dB by every snowmobile manufactured after July 1, 1972 and before July 2, 1975 and that is operated in the state or noise that is emitted above 78 dB by every snowmobile that is manufactured after July 1, 1975 and that is operated in the state.

SECTION 2. NR 6.08(1)(title) and (c) are amended to read:

NR 6.08(1)(title) SOUND LEVEL LIMIT AND MANUFACTURER PROCEDURES.

(c) The sound level requirements and testing criteria of the Society of Automotive Engineers Technical Report ~~J192a,~~ J192 as amended ~~1975,~~ shall be adhered to in certifying compliance with snowmobile sound level requirements for every snowmobile manufactured and offered for sale or sold in the state of Wisconsin.

SECTION 3. NR 6.08(1m) is created to read:

NR 6.08(1m) SOUND LEVEL LIMIT AND OPERATOR PROCEDURES. (a) Definitions for use in this section include:

1. "Field calibration" means calibration of the sound level meter using an external sound level calibrator that will ensure the accuracy of the microphone and sound level meter.

2. "Internal calibration" means calibration of the sound level meter by an internal oscillator or other means. The sound level meter internal calibration may be used, provided that the overall response of the sound level meter and microphone are evaluated by an external acoustic calibrator meeting the requirements of par. (d)3. at the start and at the end of each test day.

3. “Longitudinal plane of symmetry” means the plane perpendicular to the horizon with the snowmobile sitting on a level surface which is parallel to the normal direction of travel and equidistant between the skis.

4. “Technician” means a person trained to properly collect sound levels using the procedure in this section.

(b) The total vehicle noise produced by every snowmobile manufactured after July 1, 1972 and before July 2, 1975 and that is operated in the state of Wisconsin may not exceed 82 dB on an A weighted network when measured in accordance with the procedures required in this section.

(c) The total vehicle noise produced by every snowmobile that is manufactured after July 1, 1975 and that is operated in the state of Wisconsin may not exceed 78 dB on an A weighted network when measured in accordance with the procedures required in this section.

(d) Instrumentation (sound meters to be used). The following instrumentation shall be used:

1. A sound level meter that conforms to Type 1, Type SIA, Type 2 or Type S2A requirements of ANSI SI.4-1983.

2. A microphone of the free-field type.

3. A sound level calibrator with an accuracy of ±0.1 dB.

4. A windscreen which does not affect microphone response more than ±l.0 dB for the frequency range of 63 to 4,000 Hz and ±l.5 dB for frequencies ranging from 4,000 to 10,000 Hz. An engine speed tachometer or other means of determining engine speed with a steady-state accuracy of ±3% at the prescribed test speed.

(e) Test site criteria. 1. The test site shall be a flat, open surface free of large sound-reflecting surfaces, other than the ground, such as parked vehicles, signboards, buildings or hillsides located within 5 m (16 ft.) of the snowmobile being tested and the location of the microphone.

2. The preferred surface of the ground within the test site area shall be grass or snow; however, dirt, gravel or pavement may be used when tested according to procedures listed in par. (g)8.

(f) Measurements. 1. The sound level meter shall be set for A-weighting network and slow dynamic response.

2. The sound level meter shall be calibrated and adjusted, if necessary, so that the meter reads within 0.1 dB of the true level at the microphone.

3. The microphone shall be located on the side of the snowmobile towards which the exhaust outlets are directed.

4. The longitudinal axis of the microphone shall be in a plane parallel to the ground plane. There may be no physical attachment between the snowmobile and the microphone/sound level meter.

5. The microphone shall be located at a distance of 4.00 m /157.5 inches from the longitudinal plane of symmetry and 1.22 m /48.0 inches above the ground plane in line with the exhaust outlet. If there is more than one exhaust outlet it shall be located with reference to the center-most point of the multiple outlets.

(g) Procedure. 1. No person other than the snowmobile operator and the person performing the sound level measurements shall be within 3 m (10 ft) of the snowmobile or the microphone. If another observer is present, he or she shall remain in a fixed position behind the sound level meter.

2. With the snowmobile engine shut off, the technician shall observe the overall ambient sound level at the measurement location. The technician shall record this level, including wind effects. In order for a test to be valid, the measured sound level of the snowmobile shall be at least 10 dB higher than the recorded ambient sound level.

3. Operate the snowmobile in the following manner:

a. The snowmobile shall be parked at the test site with an operator seated in the normal operating position, and the forward traveling path of the snowmobile clear of obstructions.

b. The operator shall hold the brake throughout the test.

c. The operator shall start the engine and run until reaching normal operating temperature range, as specified by the manufacturer.

d. While holding the snowmobile stationary by applying the brakes, the operator shall slowly open the throttle until a steady 4,000, but no less than 3,750, rpm engine speed is achieved.

4. The technician shall measure the sound level observed during steady-state operation at a maximum of 4,000 rpm, but not less than 3,750 rpm over a period of not less than 4 seconds. The technician shall record the average reading.

5. Immediately following the first test, the test shall be repeated in an identical manner and a second reading shall be recorded.

6. The 2 readings shall be within 2 dB of one another.

7. The technician shall record both sound levels and shall average the 2 readings. If the 2 readings are not within 2 dB, the technician shall repeat the test procedure until 2 readings within 2 dB are obtained.

8. Using the average of both sound levels, the technician shall subtract; 2 dB when testing on grass or unpacked snow and shall subtract 4-dB when testing on hard surfaces such as packed snow, pavement or gravel in order to be comparable to SAE J192 - *Exterior Sound Level for Snowmobiles*.

a. For snowmobiles manufactured after July 1, 1972 and before July 2, 1975 the level may not exceed 82 dB after subtracting the required 2 dB or 4 dB from the averaged result.

b. For snowmobiles that are manufactured after July 1, 1975, the level may not exceed 78 dB after subtracting the required 2 dB or 4 dB from the averaged result.

c. The technician shall repeat the ambient sound level measurement.

d. The technician shall repeat the calibration procedure. If the calibration has shifted more than 0.2 dB, the individual test is invalid.

(h) No person may operate a snowmobile that is equipped with a muffler cut out, by-pass switch or similar device.

SECTION 4. NR 6.08(4) and (6) are amended to read:

NR 6.08(4) Copies and amendments of the ~~1975~~ Society of Automotive Engineers Technical Report ~~J192a~~ J192, entitled “Exterior Sound Levels for Snowmobiles”; 1973 Society of Automotive Engineers Technical Report J280, entitled “Snowmobile Headlamps”; and 1972 Society of Automotive

Engineers Technical Report J279, entitled “Snowmobile Tail Lamps”, are available for inspection in the following offices:

(6) REFUSAL TO ALLOW TESTING. No operator or owner of any snowmobile may deny inspection or testing of the equipment or operating system of a snowmobile or may refuse to operate his or her snowmobile in a manner prescribed by the law enforcement officer who reasonably suspects a violation of snowmobile equipment requirements found in either ch. 350, Stats., or this subchapter.

SECTION 5. EFFECTIVE DATE. This rule shall take effect the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

SECTION 6. BOARD ADOPTION. This rule was approved and adopted by the State of Wisconsin Natural Resources Board on _____.

Dated at Madison, Wisconsin _____.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By _____
Scott Hassett, Secretary

(SEAL)