



AEROSPACE STANDARD

AS8473™

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Endurance Testing for UAS Engines Having
Maximum Power Ratings at or Below 22.4 kW

RATIONALE

This aerospace standard is intended to provide the unmanned aviation industry with a standard means of conducting endurance testing for engines used to power small unmanned aerial systems.

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Documents

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1. SCOPE

This standard is applicable to reciprocating engines powering unmanned aerial vehicles (UAV) that have rated power values less than 22.4 kW and are not to be used for human transport. This standard only covers engines designed for 150 hours of operation or higher.

1.1 Purpose

The purpose is to specify guidelines for assessing the endurance or durability of fully equipped engine configurations so that critical parameters can be measured under highly controlled and standardized conditions. It is the expectation of this standard that it serves as a basis for certification or regulation.

2. REFERENCES

2.1 Applicable Documents

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1.1 SAE Publications

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

ARP6971 Power and Torque Determination for UAS Engines Having Maximum Power Ratings at or Below 22.4 kW

SAE J1349 Engine Power Test Code - Spark Ignition and Compression Ignition - As Installed Net Power Rating

Sevik, J., Wallner, T., Miers, S., and Wasil, J., "Air-to-Fuel Ratio Calculation Methods for Oxygenated Fuels in Two-Stroke Engines," SAE Technical Paper 2015-01-0965, 2015, <https://doi.org/10.4271/2015-01-0965>.

2.1.2 ISO Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ISO 2533 Standard atmosphere

2.1.3 U.S. Government Publications

Copies of these documents are available online at <https://quicksearch.dla.mil>.

14 CFR Part 33 Airworthiness Standards: Aircraft Engines

MIL-STD-705D Mobile Electric Power Systems

2.2 Definitions

BRAKE POWER: The power delivered at the shaft (main drive or main output) of the engine.

FULLY EQUIPPED ENGINE: A fully equipped engine is an engine equipped with only those accessories necessary to perform its intended service as per SAE J1349.

LIMITING TEMPERATURE: Upper operating temperature limit for the cylinder head set by the engine manufacturer.