

Academy of Model Aeronautics

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AMA Rules for Design, Construction, and Operation of Non-Production Gas Turbine Engines for R/C and CL Models

*Approved by AMA Executive Council (EC), on July 9, 2001, at the Board of Directors meeting
Amended by the EC on April 9, 2011 (noted in bold)*

Engine Testing and Verification

- A. Before any non-production engine may be flown at an “AMA field” or at an AMA sanctioned event, it must have been demonstrated to operate safely. Such a demonstration shall be simultaneously witnessed by **two experienced turbine pilots, one of whom is a contest director**. Upon successful completion of the demonstration, the witnesses shall complete the Non-Production Gas Turbine Safety Demonstration form, attached at the end of this document. **This will serve as a provisional authorization to operate the engine. The completed form has to be received by AMA HQ no later than 30 days after being issued for the waiver to be valid. Upon receipt AMA will issue a Non-Production Turbine Engine Waiver. Along with the waiver, AMA will also send a special numbered identification sticker that should be affixed to the specific engine, which was tested during the Safety Demonstration.**
- B. Non-production engine safety demonstration shall include, as a minimum, no fewer than three consecutive full power ground (test standard) runs of at least eight (8) minutes continuous duration. The builder shall demonstrate the engine’s maximum steady state EGT, the maximum steady state RPM, and the ability of both the ECU and the auxiliary shutdown’s ability to shut down the engine in normal operating circumstances. Emergency (e.g., high EGT) shutdowns need not be demonstrated.
- C. During the demonstration runs, no vibration should be felt in the test stand, and there should be no foaming of the fuel and/or oil in tanks not damped in any way. If foaming exists, or if the engine makes unusual noises indicating a balancing issue, the engine must be rebalanced before the demonstration can be successfully completed. Additionally, there should be no flames exiting the exhaust during steady state operations, and RPM should appear steady.
- D. Both before the demonstration runs begin and after the runs are complete, the builder shall conduct, in the presence of the witnesses, a thorough inspection of the engine including the turbine wheel, all screws, all external welds, and all associated equipment including lines, and attach points.
- E. Should the non-production engine being demonstrated fail any portion of the prescribed testing, the entire test shall be considered to have failed, and the builder must reschedule another test session at a later date.
- F. **All pilots operating turbine powered model aircraft solo shall have a qualifying turbine waiver (fixed wing, rotary wing, and/or control line depending on the model being operated with the non-production gas turbine engine) issued by AMA.**

**Rules for Design, Construction, and Operation of
Non-Production Gas Turbine Engines for R/C Models**

NON-PRODUCTION GAS TURBINE ENGINE SAFETY DEMONSTRATION

Name/AMA Number of Builder: _____

Name of Engine Design: _____

Detailed Description of Engine (type, size, plans followed, unusual characteristics or appearance):

Turbine Wheel Diameter: _____ mm Wheel Manufacturer: _____

Manufacturer's Certification Present? (Y/N) _____ Max. Recommended RPM: _____

Date/Location of Demonstration: _____

Name/AMA Number of Turbine CD: _____

Name/AMA Number of Turbine Waiver Holder: _____

Start/Stop Time of First Eight Minute Run: (Start) _____ (Stop) _____

Max. Continuous EGT: _____ °C Max. Continuous RPM: _____ RPM

Start/Stop Time of Second Eight Minute Run: (Start) _____ (Stop) _____

Max. Continuous EGT: _____ °C Max. Continuous RPM: _____ RPM

Start/Stop Time of Third Eight Minute Run: (Start) _____ (Stop) _____

Max. Continuous EGT: _____ °C Max. Continuous RPM: _____ RPM

Normal ECU Shutdown Okay (Y/N): _____ Aux. Engine Shutdown Okay (Y/N): _____

Signature AMA Turbine CD Witness

Signature AMA Turbine Waiver Holder Witness

Mail this form to: Academy of Model Aeronautics
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