



MAAC Turbine Operator Certificate (TOC) Policy

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1. Background:

With the advancement of the Gas-Powered turbine in a significantly short time throughout radio control model aviation in the world, MAAC members have shown a comparatively similar interest in this segment of the hobby. With members wishing to attend clubs and events in the USA, this has presented its own challenges due to the original concept of flying turbine powered aircraft in America sanctioned through the Academy of Model Aeronautics (AMA). The AMA designed the ability to fly turbine powered aircraft so that it was only eligible for AMA members and that was only under the Gas-Powered Turbine Wavier Program. At that time, foreign pilots did not qualify for a waiver, and due to time constraints and qualification restrictions, it made it very difficult for foreign pilots to entertain the thoughts of travelling to the US for short durations of weekend flying.

With the interest of American event organizers and club executives wishing to have pilots of other countries attend American based events and clubs, the AMA developed a policy that stated "AMA will accept a letter from the National Aero Club stating that the pilot is qualified and experienced in operating a model powered by a turbine engine" (from that pilot's country where he resided).

In Canada, members from the earlier Jet committees, developed what was called the Letter of Proficiency (LOP). After a period of time the LOP needed some further enhancements, which was redesigned and came to be known as the Turbine Operators Certificate (TOC). Both the LOP and TOC were both designed on AMA documents such as 510-a, AMA Gas Turbine Program, 535-b, 105, etc. Again, both LOP and TOC have placed several responsibilities on to the holder. They must understand the technology, operate in a safe manner while representing Canada and MAAC and in a courteous and respectful way.

Priorities of the TOC are to-

- Provide a pair of summary documents that clearly state the requirements and process for the application and granting of the certification document.
- A list of qualified individuals for signing off on an application that is made available and maintained by the chairman.
- A complete list of the of the document holders which is available on the MAAC website and maintained by the chairman.

2. Application:

The MAAC Jet Committee shall be the only body capable of issuing the TOC. Applicants may be tested and recommended by Jet Committee members (who themselves hold a TOC) or by approved examiners, however, the Chairman of the Jet Committee is the only person who may sign and issue the document.

The possession of a TOC must be viewed as a privilege and not a right. It should also be clearly understood that a MAAC TOC is only required for modelers wishing to operate turbine powered models at AMA sanctioned events and flying sites in the US. This document is not required for any MAAC member to operate a turbine powered aircraft in Canada.

An applicant for this letter must demonstrate to the satisfaction of the examiner(s) that he/she possesses the skills and knowledge necessary for consistently safe operation of gas turbine powered models, both on the ground and in the air. The applicant may be questioned on safety procedures and turbine regulations in both Canada and the US. (The MAAC Safety Code and AMA Documents 510-a,105, and 535-b should be used as resources.)

Applicants for the TOC should be competent and comfortable with their aircraft. Pilots with histories (in any type of model) of erratic flying, safety incidents, insufficient confidence, and/or high number of crashes (i.e., more than 2 per year from any cause) will not be considered for TOC until the trend has clearly improved.

Aside from any follow up tests that may be requested, as detailed later, the intent of this plan is to ensure that the process can be easily completed in a single day for the clear majority of applicants.

2.1. Cost:

Any cost associated with the applicant's travel, phone calls, etc. are not funded by MAAC. The only projected costs to MAAC shall be letterhead and postage for the TOC documents. Projected costs to Examiners shall be limited to travel costs for events that they would normally attend. These will not be reimbursed by MAAC.

The applicant shall be responsible for any costs related to obtaining the TOC.

3. Ground Operations and Flight Test:

Before having the document granted, the applicant must satisfactorily complete a ground operations and flight test. Since the sole purpose of this program is to provide assurance of the pilot's ability to safely operate turbine powered aircraft in the USA, the test shall be heavily based on the same requirements as the AMA Turbine Waiver program (AMA document 510-d):

3.1. Key Elements:

The following elements are to be demonstrated through action along with verbal discussion of the element where appropriate.

3.1.1. Demonstration of Proper Turbine Ground Operations

- a. Discuss the need to keep the tailpipe area clear of people and flammable items during start, shutdown, and all ground operations.
- b. Explain the response plan for dealing with an aircraft fire similar to one resulting from a hot start.
- c. Explain the potential for a post-crash fire and the response plan to deal with the situation. (*Explanation to include local fire department contact number and firefighting equipment immediately available for the modeler to respond to the fire.*)
- d. Explain typical turbine startup procedure, precautions to be aware of- such as keeping all persons away from the operating engine rotational plane of the compressor or turbine, and so demonstrate.
- e. Explain typical turbine shutdown procedure, precautions to be aware of, and demonstrate.

3.1.2. Flight Skills

- a. Takeoff, to be held ~ +/- 10 ft of centerline, with smooth, controlled corrections as necessary. The pilot must demonstrate a successful takeoff while standing in a designated pilot station. (*ie: not standing behind the aircraft to perform this test.*) The examiners must be confident that the pilot is capable of performing the takeoff in both directions, and may request follow up test(s) at a later date or other location if necessary.

- b. Horizontal Figure 8. Pilot to hold altitude to within ~ +/- 50 feet during the Figure 8. *(This demonstrates skills at both left and right hand patterns and the ability to control the models flight path.)*
 - c. Perform three aerobatic maneuvers with combined looping and rolling elements to be selected by the turbine applicant. Examples include Cuban 8, Humpty Bump with ½ roll, or similar maneuvers. *(This demonstrates the general flying skills and confidence in the pilot's control of the turbine powered model)*
 - d. High Speed Circuit of the field performed at a safe high rate of speed. The speed and / or required throttle setting to be set by examiners. *(This demonstrates the ability to control a model aircraft at speed.)*
 - e. Square Traffic Pattern including a missed approach go-around. This maneuver is to be demonstrated in both directions. *(This demonstrates the ability to control a model aircraft in the landing approach mode.)*
 - f. Landing to a complete stop. Again, smooth, controlled corrections to the aircraft's path after touchdown are required. The landing must be completed on the runway and must include the use of brakes. The examiners must be confident that the pilot is capable of performing the landing in both directions, and may request follow up test(s) if necessary.
- At no time during the flight demonstration shall the aircraft pass behind the designated safety line. This will immediately result in the TOC not being granted, then requiring a follow up application and re-test.

3.2. Test Locations:

The tests may occur at a paved runway or suitable grass strip. Applicant tests shall be conducted in Canada without exception.

Minimum Aircraft Specification:

The qualification flight(s) shall be performed with a turbine powered fixed wing aircraft weighing at least 12 pounds (dry).

4. Roles and Responsibilities:

4.1. References

Two* 'examiners' are required for each TOC application. The primary examiner shall be certified by the Jet Committee and publicly listed in the Jet Committee section on the MAAC web site. The secondary reference shall be another certified examiner if possible. If needed, a qualified turbine pilot may stand in as the secondary examiner if they have a current MAAC membership and have possessed a TOC for a period no less than 1 year. If possible, the Jet Committee Chairman should be one of the Committee's examiners.

(* Note: three references are required in circumstances described in section 6.2)

There shall not be any outside relationship between the applicant and any examiner that could be deemed a conflict of interest for the purposes of this evaluation. Such relationships include: family, business (including a profit related customer/product rep/supplier relationship or that of an employer/employee), or close personal friendship. The examiners shall be independent and impartial.

The Jet Committee Chairman shall judge the degree of conflict of interest if in question, and reserve the right to select examiners or reference pilots in any TOC application.

A note on qualified examiners: Once the TOC document and application process is established, a follow up action shall be discussed in the Jet Committee with regards to nominating examiners that are not Jet Committee members but do possess the skills and background to verify a pilot's qualifications. This will lessen the burden on Committee members, and allow for situations where it may be difficult to remove bias or personality conflicts.

4.2. Examiner's Role:

The examiners must be completely confident in the applicant's piloting ability, understanding, and willingness to abide by both MAAC and AMA rules prior to recommending him/her for a TOC.

All examiners are responsible for independently reporting an unbiased summary of the results to the Jet Committee Chairman. All applications are reviewed by the Jet Committee Chairman, who is ultimately responsible for the signoff on MAAC's behalf.

If a qualified MAAC turbine pilot is included in the application as a stand in examiner, as detailed in section 4.1, the primary examiner is responsible for communicating the overall expectations and standards for quality of examination to the reference pilot. This must occur prior to beginning any portion of the official review process.

4.3. Remote Locations:

If in the worst case there are no examiner's available in the area, the Jet Committee Chairman has the ability to nominate a seasoned, knowledgeable, proven, and trustable pilot in the region to act as a temporary examiner. A quality unedited video of the flight(s) and other required demonstrations will be mandatory in this case. The role of the local pilot shall be to ensure the validity of the video, and to provide unbiased feedback on the applicant's overall confidence and safe approach to operating the model. This shall be followed by a committee vote with results that will be reviewed and communicated by the Jet Committee Chairman.

4.4. Further Investigation:

In any application, the Jet Committee Chairman has the right to request further questions or flight tests to ensure full confidence.

5. Judgment:

5.1. Pass / Fail Actions and Re-tests:

If the testing session does not result in a 'pass', the examiner(s) shall be prepared to discuss areas where more practice is required. The applicant may request a re-test when the additional practice results in improved performance in the noted areas. This may occur no less than 2 weeks after the 1st test, allowing the applicant ample time to address the constructive feedback. If after the second attempt and the applicant has still not passed the test, the examiners would communicate with the Chairman as to when the next test should be appropriate to attempt again.

5.2 Personality Conflicts and Resolution:

As a prerequisite for applying, the pilot must be willing to accept constructive criticism.

A pilot's attitude with respect to any portion of the process, examiners, or requirements may result in the TOC not being granted. This can be at the discretion of any one or more examiners, or by the Jet Committee Chairman. If a personality conflict is suspected between the examiner(s) and the applicant, the Jet Committee Chairman may overrule the decision, leaving examiners strictly responsible for piloting qualifications. Following that, should a personality conflict exist between the pilot and Chairman, the pilots local Zone Director has the right to investigate and overrule the Chairman if necessary, leaving the Chairman and examiners strictly responsible for piloting qualifications. In this case, the Zone Director shall be recorded on the TOC as a supplementary examiner.

6. Published Documents:

The MAAC Jet Committee Chairman will maintain 4 documents on the MAAC web site, in the Jet Committee section:

- (i) The applicant requirements and the TOC application procedure.
- (ii) The requirements for granting the TOC as an examiner.
- (iii) A list of qualified examiners with contact info.
- (iv) TOCs currently in good standing, and TOC documents that have been revoked. (Revoked TOCs shall be listed by MAAC numbers only, no names shown).

7. TOC Ownership:

7.1. Accidents in MAAC Jurisdiction:

Should any MAAC insured jet pilot have an accident with liability implications, he/she must follow the standard procedure of incident reporting to MAAC HQ. The Jet Committee must also be made aware of the accident. This is entirely separate from any TOC requirements.

Should a reasonably avoidable jet-related safety violation be reported, both the Jet and Safety Committees need to be sent a detailed summary. As a secondary concern, the Jet Committee Chairman has the right to temporarily suspend any related TOCs followed by a TOC status review and vote by the committee. All turbine pilots must follow MAAC NOTAM 2023-02 Reporting Occurrences – Accidents, Incidents and Hazards and MPPD 03 - Reportable Occurrence Policy.

7.2. Accidents in AMA Jurisdiction:

Should a MAAC TOC holder have an accident while operating his/her turbine powered aircraft in the US (either a near miss or incident with safety / liability implications) he/she must provide a written report to the Jet Committee Chairman as soon as possible, in parallel with the MAAC incident report procedure.

Examples requiring a follow up report:

- *Crashing on or behind a safety line.*
- *Negligence.*
- *Any avoidable situation that resulted in an unsafe situation for a 3rd party.*
- *Any contact with a safety fence at the minimum or larger offset described in the safety code, or offset specified at the event.*
- *Any incident that results in an insurance claim.*
- *Radio system failure resulting in a crash where the necessary failsafe operation did not occur.*

Examples not requiring follow up report:

- *Failed landing or takeoff, exiting the runway and safely coming to a stop.*
- *Flame out resulting in a crash or gear up landing away from spectators, not resulting in an insurance claim or safety issue.*
- *Pilot error driven crash away from spectators, not resulting in an insurance claim or safety issue.*
- *Radio system failure resulting in a crash with properly functioning failsafe, not resulting in an insurance claim or safety issue.*
- *Equipment failure driven crash that was unpredictable and away from spectators, not resulting in an insurance claim or safety issue.*

The Jet Committee Chair has the right to contact witnesses for 3rd party unbiased descriptions of the incident, followed by a discussion on the incident with the committee. The discussion may result in temporary suspension of the TOC or revoking the TOC if deemed necessary in a committee vote.

To be clear, upon receiving a report the default decision will be to take no action on the pilot's TOC status.

7.3. Unreported Safety Incidents or Complaints:

Should any Jet Committee member become aware of an unreported incident or avoidable jet-related safety issue (anywhere) and feel that it justifies discussion; the TOC will be immediately revoked until such a time as the document holder provides a report to the chairman and the situation is reviewed by the committee. The same result applies if any AMA member or MAAC TOC holder communicates a complaint with regards to unsafe behavior of a fellow TOC holder while flying in the US, the committee has the right to request a report and suspend or revoke the TOC through a committee vote. If the information request is refused by the document holder, his/her TOC will be immediately suspended pending a review.

8. Document Control:

8.1. Contents of the 'MAAC Turbine Operator's Certificate':

The lack of holding a TOC does not mean to place judgement on those that do not hold the certificate or place any impression that the pilot is not proficient in flying a turbine powered aircraft.

The purpose of the TOC should be to certify that a pilot has been evaluated successfully, not place a measurement on his/her skill set.

The MAAC TOC shall state the applicant's MAAC number, essential contact info, reference info for contest directors and pilots, etc. This will be followed by a reference of the examiners involved, Jet Committee Chairman at the time of granting, date granted, etc. It shall also clearly state requirements for maintaining a valid TOC. A general notes box shall be present for recording any factors not considered at the time of process implementation.

The document shall explicitly state the pilot's certification to operate one or both of the following aircraft types in AMA jurisdiction*:

- Turbo-prop
- Turbo jet

**Turbine powered helicopters, boats, etc. are not yet addressed in this policy. Future amendments may be necessary, after consultation with the necessary committees.*

8.2. TOC Suspension and Revocation:

A temporary suspension of the TOC will result in the pilot's name being removed from the public record of current TOC holders.

A revoked TOC will result in the pilot's name being removed from the list of current TOC holders, and added to a public listing of MAAC numbers with revoked TOC, pilot names shall not be displayed.

If there is any discrepancy as to the validity of a pilot's documentation, the public list of TOC holders shall be taken as proof of the TOC being granted and currently valid.

8.3. Process of Review:

Should a TOC be suspended, the committee will discuss the situation and shall vote on one of the following 4 options:

- (i) Immediate reinstatement
- (ii) Continued suspension until such a time that the reason for the suspension has been corrected.
- (iii) Revocation * (with a prescribed waiting period by the committee)
- (iv) Revocation - Permanent.

* Once the waiting period in option iii has expired, the pilot is permitted to re-apply and will be treated as a new applicant. In this case however, some consideration will still be given to reason(s) for the original suspension.

8.4. TOC Life Cycle:

Once granted, the TOC does not have an expiration date. If lost or destroyed, the owner can request a new copy from the Jet Committee Chairman.

If the committee becomes aware of a TOC associated with a MAAC number that has been expired for a period of 2 years or more, the chairman has the right to immediately suspend the TOC. If suspended and the pilot reactivates his/her MAAC account under the same or new number, the TOC process shall be treated as a new application.

Should a MAAC member possess a TOC and misplace it, so long as the MAAC membership is current the chairman shall provide a replacement upon request.

9. TOC Application Process:

The pilot starts the application by contacting the Jet Committee Chairman or Committee member with a request, at which time the applicant will need to have reviewed the requirements. The pilot and Chairman will follow up with identifying a group of appropriate examiners. The pilot will then take the responsibility of organizing the required demonstrations with examiners.

When performing testing for a Turbine Operators Certificate, both knowledge and flight tests should be completed on the same day, but in no case should the two components be more than 10 days apart. After 10 days, all knowledge and flight testing are started over.

Once the necessary positive feedback has been received from the examiners, the Chairman will immediately generate the TOC and update the published documents. Once the published documents are posted, the applicant shall be considered certified by MAAC to fly turbine powered models in AMA jurisdiction. The hard copy of the TOC shall be sent by standard mail.