U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: **PILOT QUALIFICATION AND OPERATION OF ALL SURPLUS MILITARY TURBINE-POWERED AIRPLANES**

Date: 2/25/92 AC No: **91-68**
Initiated by: **AFS-820**

1. PURPOSE. This advisory circular (AC) provides information and guidance to pilots who wish to become qualified to operate surplus military turbine-powered airplanes under a letter of authorization (LOA), as required by operating limitations issued for this type of aircraft. Like all AC material, this information is not mandatory and does not constitute a regulation. This AC is issued for guidance purposes and to outline a method of compliance with the rules. In lieu of following this method without deviation, the applicant may choose to follow an alternate method, provided the Federal Aviation Administration (FAA) finds the alternate method to be an acceptable means of complying with the requirements of the Federal Aviation Regulations (FAR). Because the method of compliance presented in this AC is not mandatory, the terms "shall" and "must" used herein apply only to an applicant who chooses to follow this particular method without deviation.

2. RELATED FEDERAL AVIATION REGULATIONS. FAR Parts 45 and 47 and FAR §§ 21.191, 21.193, 61.63(d), 91.7, and 91.319.

3. BACKGROUND. Recently there has been a proliferation of requests seeking issuance of experimental exhibition certificates for the operation of surplus military turbine-powered airplanes. Examples of these airplanes include models such as the Northrop F-5, which is of U.S. manufacture, and the Mikoyan MiG-15 of foreign manufacture.

a. Operating limitations issued for surplus military turbine-powered aircraft require the pilot in command to obtain an LOA from the FAA. **(For related airworthiness information pertaining to certification of surplus military turbine-powered airplanes in the experimental category, contact the nearest FAA Manufacturing Inspection District Office.)**

b. Type Ratings. FAR § 61.31(a) requires type ratings for certain aircraft. FAA policy requires type ratings for large surplus military airplanes or turbojet-powered airplanes when they have been certificated in the standard category. FAR § 61.31 (f) does not require type ratings for operation of aircraft certificated in the experimental category, and this includes surplus military aircraft certificated in the experimental category.

c. Although the FAA has not established type ratings for the operation of surplus military airplanes certificated in the experimental category, the procedures and requirements outlined in this AC are intended to ensure a level of safety equivalent to that expected if such ratings were required.

4. DEFINITIONS.

a. Airplane type, as used in this AC, means a specific make and basic model; i.e., Mikoyan MiG-15 or Douglas A-4.

b. Comparable, as used in this AC, means aircraft with similar characteristics. Some characteristics to consider when determining comparability of aircraft are straight-wing versus swept wing, subsonic versus supersonic, gross weight, and number of engines.

c. Letter of Operational Authority. A letter of operational authority issued by the FAA allows an individual or organization to evaluate an applicant's knowledge and flight proficiency and to provide a recommendation to the FAA for the issuance of an LOA. In addition, a holder of a letter of operational authority may endorse an existing LOA holder for continued solo flight after a period of 6 calendar months of inactivity.

d. This AC provides several ways for pilots to become qualified to operate surplus military turbine-powered airplanes.

e. A simplified flow chart on how to obtain an LOA is displayed in appendix 1.

5. COMMENTS INVITED. Comments regarding this publication should be directed to:

Federal Aviation Administration
Flight Standards Service
National Field Office, AFS-500
Advisory Circular Staff
P.O. Box 20034, Gateway Building
Dulles International Airport
Washington, DC 20041-2034

Not every comment will generate a direct acknowledgement to the commenter. Comments received will be considered for upcoming revisions to AC's or other related technical material.

6. ELIGIBILITY. To be eligible for an LOA to serve as pilot in command of a U.S. or non-U.S. surplus military turbine-powered airplane, an applicant must:

a. Possess at least a private pilot certificate with appropriate category and class rating (such as airplane, single-engine land).

b. There are two ways in which to meet flight experience eligibility requirements for the issuance of an LOA. The pilot is required to meet only one of them. They are:

(1) Pilot must have logged a minimum of 1,000 hours pilot flight time, including 500 hours as pilot in command in the airplane category; or

(2) Pilot must have logged a minimum of 500 hours pilot flight time in the airplane category and have completed the U.S. armed services qualification checkout as specified under the general training requirements, paragraph 8a.

c. Possess at least a valid third-class FAA medical certificate.

7. APPLICATION PROCEDURES.

a. An applicant shall submit an application in letter form to the Flight Standards District Office (FSDO) where the applicant resides or in the area the flight or series of intended flights will begin. The application shall be submitted at least 30 days before the date of the first intended operation and include at least the following information:

(1) A completed FAA Form 8710-1, Airman Certificate and/or Rating Application.

(2) The current address of the applicant and a telephone number where the applicant can be reached during normal business hours.

(3) The grade of the applicant's pilot certificate, number, rating(s), and limitations,along with a description of the pilot's background and hours of experience in the type of airplane involved or similar type.

(4) The pilot's plan for transition training to the specific airplane, including ground, flight, and simulator training if applicable. Minimum standards for such training are specified under the general training requirements, paragraph 8.

(5) The date and class of FAA airman medical certificate held, including any limitations, and whether the pilot applicant has had high altitude physiological training, including the date of such training, as appropriate.

(6) The make, model, and manufacturer of the airplane to be flown.

(7) The name of the airport where the airplane will be based and a description of the proposed flight, or series of flights, including the purpose, airport of departure, airports of intended use enroute, and airport of destination, as applicable.

(8) An operations manual that includes the operating limitations for that airplane or a list of the operating limitations which apply to the airplane and its current airworthiness status.

b. Once the application, including the applicant's proposed training plan has been received by the FSDO, an FAA inspector will review the application and advise the applicant whether the application is acceptable or whether revisions and/or amendments are necessary.

8. GENERAL TRAINING REQUIREMENTS. FAA requires documented evidence of appropriate training. The training which the applicant receives should be obtained from the most complete program available. For example, the manufacturer, the military, or outside contractors may be potential sources for ground, simulator, or flight training.

a. To act as pilot in command in the particular type airplane or in a "comparable" type fighter or attack airplane, the applicant is required to show evidence of completion of an appropriate U.S. military service qualification checkout (U.S. Air Force F-86, U.S. Navy A-4, etc.). The applicant must also show evidence of having flown as pilot in command of a turbine-powered airplane within the preceding 3 calendar months and logged 10 hours as pilot in command in the particular type airplane or a "comparable" type fighter or attack airplane during the preceding 12 calendar months; or

b. The applicant may show evidence of satisfactory completion of the manufacturer's pilot-in-command qualification checkout in the particular type airplane. In such case, the applicant must provide a copy of the manufacturer's training program curriculum.

c. If the above methods of training are not available or feasible, the applicant may provide an endorsement by the holder of a current and appropriate LOA in that type airplane, who has also been authorized in writing by the FAA to make the endorsement, that ground instruction has been given and that the applicant is adequately knowledgeable of:

(1) The airplane's systems and components;

(2) Normal and emergency procedures (abnormal if described in the airplane's checklist);

(3) Use of performance charts including, but not limited to, takeoff, climb, cruise, descent, and landing;

(4) Fuel requirements and management;

(5) Runway requirements and limitations (minimum length and crosswind limits of the airplane);

(6) Contents of the airplane flight manual or equivalent;

(7) Operating limitations prescribed for the particular airplane, including the adverse effects of exceeding any limitation; and

(8) Operation of the airplane in the high altitude regime.

d. In addition to the knowledge requirements of subparagraph c, the applicant must present an endorsement by the holder of a current and appropriate LOA in that type airplane, who has been authorized in writing by the FAA to make the endorsement, that he/she has personally flown with the applicant in the type airplane for multiple-place or a comparable airplane for single-place and has found the applicant competent to perform safely:

(1) Airplane preflight;

(2) Cockpit resource management, as appropriate;

(3) Powerplant start procedure, taxiing, and pre-takeoff checks;

(4) Takeoffs and landings (normal, crosswind, and arrestment procedures), if appropriate;

(5) Aborted takeoffs;

(6) Flight at critically slow airspeeds;

(7) Approaches to stalls (if appropriate to the airplane used);

(8) Recovery from specific flight characteristics;

(9) Normal and emergency procedures (abnormal if described in the airplane's checklist);

(10) Maneuvering to landings with simulated powerplant failure - multiengine airplane;

(11) Zero-flap landings, as appropriate;

(12) Rejected landings; and

(13) Aerobatics (if appropriate to the airplane and if the applicant does not wish to have the limitation, "Aerobatic maneuvers are not authorized" placed on his/her LOA).

e. The applicant may propose a written training program curriculum of his/her own design. The training program curriculum should provide transition ground and flight training appropriate to the airplane. The training program shall ensure that the applicant, after satisfactorily completing the proposed training program, will have received training at least equal in scope and content to that contained in either subparagraphs a or b, or c and d.

f. A temporary LOA to fly a multiple-place airplane may be granted for proficiency and practice flying in preparation for the practical test specified in paragraph 10b. This temporary LOA may be issued on the basis of the applicant having satisfactorily completed the appropriate training contained in this paragraph. This

temporary LOA shall be valid for a maximum period of 60 days and shall be limited to flights in a prescribed geographical area. This temporary LOA may be reissued for an additional 60 days if the applicant can show that he/she was prevented from proficiency and practice flying by circumstances beyond his/her control. In any case, the airplane's airworthiness limitations, as amended, must be complied with.

9. TRAINING REQUIREMENTS - SINGLE-PLACE AIRPLANES.

a. In the case of a single-place airplane, the flight training specified in paragraph 8, subparagraphs a, b, or d(1) through (13), must be met; however, this training may be completed in a comparable two-place airplane; e.g., T-33, Fouga Magister, etc.

b. In determining what constitutes a comparable two-place airplane for training purposes, and for authorizations concerning single-place turbine-powered airplanes, the FAA will require the applicant to receive training in the most complex airplane which most nearly duplicates the characteristics of the single-place model. Some single-seat military fighters have two-place models which may also be available.

c. A temporary LOA to fly a single-place airplane may be granted for proficiency and practice flying in preparation for the practical test specified in paragraph 11 in accordance with paragraph 8d and 8e.

d. This temporary LOA may be issued on the basis of the applicant receiving appropriate ground and flight training. This appropriate training may be obtained in one of the following ways:

(1) To act as pilot in command in the particular type single-place airplane or in a "comparable" type fighter or attack airplane, the applicant may show evidence of completion of the appropriate U.S. military service qualification checkout (U.S. Air Force F-86, U.S. Navy A-4, etc.). If the applicant has not completed the U.S. military service qualification checkout in the type single-place airplane, but rather in a "comparable" type fighter or attack aircraft, the applicant must provide an endorsement for ground instruction in that type airplane as outlined in paragraph 8c. Also, the applicant must show evidence of having flown as pilot in command of any turbine-powered airplane within the preceding 3 calendar months and logged 10 hours as pilot in command in the particular type airplane or in a "comparable" type fighter or attack airplane during the preceding 12 calendar months;

(2) The applicant may show evidence of satisfactory completion of the manufacturer's pilot-in-command qualification checkout in the particular single-place type airplane. In addition, the applicant must provide the written training program curriculum; or

(3) The applicant may provide an endorsement for ground instruction in that type single-place airplane as outlined in paragraph 8c. Also, the applicant must provide an endorsement as outlined in paragraph 8d for flight competency in a "comparable" two-place airplane.

e. This temporary LOA shall be valid for a maximum period of 60 days and shall be limited to flights in a prescribed geographical area. This temporary LOA may be reissued for an additional 60 days if the applicant can show that he/she was prevented from proficiency and practice flying by circumstances beyond his/her control. In any case, the airplane's airworthiness limitations, as amended, must be complied with.

10. PRACTICAL TEST - OTHER THAN SINGLE-PLACE AIRPLANE.

a. After the applicant has satisfactorily completed the proposed training program which was deemed acceptable to the FAA, a demonstration of the applicant's knowledge and flight proficiency will not be required (for visual flight rules (VFR) flight only) if the applicant:

(1) Has satisfactorily completed the appropriate U.S. military service qualification as outlined in paragraph 8a and has shown evidence of having flown as pilot in command of any turbine-powered airplane within the preceding 3 calendar months and logged 10 hours as pilot in command in the particular type airplane or in a "comparable" type fighter or attack airplane during the preceding 12 calendar months; or

(2) Has satisfactorily completed the training and was endorsed by the holder of a current and appropriate LOA as outlined in paragraph 8c and d.

b. After the applicant has satisfactorily completed the proposed training program which was deemed acceptable to the FAA, a demonstration of the applicant's knowledge and flight proficiency will be required (for VFR flight only) if the applicant:

(1) Has satisfactorily completed the appropriate military service qualification as outlined in paragraph 8a, but has not flown as pilot in command of any turbine-powered airplane within the preceding 3 months and logged 10 hours as pilot in command in the particular type airplane or in a "comparable" type fighter or attack airplane during the preceding 12 calendar months;

(2) Has satisfactorily completed the manufacturer's pilot-in-command qualification as outlined in paragraph 8b; or

(3) Has satisfactorily completed the training program curriculum developed by the applicant as outlined in paragraph 8e.

c. The knowledge and flight proficiency demonstration will be conducted by an FAA operations inspector. The demonstration should include the maneuvers and procedures listed under paragraphs 8c(1) through (8) and 8d(1) through (13) to the maximum extent possible and will include three takeoffs and landings. The flight may be observed from the ground, from another airplane, or may be conducted by an inspector on board the airplane being used for the test. If conducted by an inspector on board the airplane, the airplane must have fully functioning dual controls. Inspectors assigned to administer such flight checks should preferably have a background in military airplanes similar to those in which the checks are given. Inspectors must be initially qualified in turbine-powered airplanes under the provisions of FAA Order 8700.1, General Aviation Operations Inspector's Handbook. If an inspector with experience in similar military-type turbine-powered airplanes is unavailable, an inspector "well qualified," under the provisions of Order 8700.1, Volume II, Chapter 1, Section 2, paragraph 13, may be designated by the appropriate regional office in an LOA to conduct the flight check.

11. PRACTICAL TEST - SINGLE-PLACE AIRPLANE.

a. After the applicant has gained proficiency, made three takeoffs and landings and logged at least 3 hours of flight time in the type of single-place airplane under a temporary LOA, a demonstration of the applicant's

knowledge and flight proficiency will not be required (for VFR flight only) if the applicant has satisfactorily completed the training as outlined in paragraph 9d(1).

b. After the applicant has gained proficiency and made three takeoffs and landings and logged at least 3 hours of flight time in the type of single-place airplane under a temporary LOA, a demonstration of the applicant's knowledge and flight proficiency will be required (for VFR flight only) if the applicant has satisfactorily completed the training as outlined in paragraph 9d(2) or d(3).

c. The knowledge and flight proficiency demonstration will be conducted by an FAA operations inspector. The demonstration should include the maneuvers and procedures listed under paragraphs 8c(1) through (8) and 8d(1) through (13) to the maximum extent possible and will include three takeoffs and landings. The flight may be observed from the ground or, when necessary, observed from another airplane. Extreme care should be taken when utilizing a chase airplane to ensure proper preflight coordination is completed between the crews.

12. ISSUANCE OF AN LOA. After the application has been received by the FSDO, the appropriate training accepted and satisfactorily completed, and the flight test/flight proficiency demonstration administered and satisfactorily accomplished, as appropriate, an LOA will be issued to the pilot applicant. This LOA will bear an expiration date but may be reissued as outlined under Limitations, paragraph 14d. A separate application, training program, and flight test shall be required for each surplus military turbine-powered airplane.

13. DESIGNATION OF PERSONS AUTHORIZED TO ENDORSE AN APPLICANT'S KNOWLEDGE AND FLIGHT PROFICIENCY. Some individuals or organizations within the aviation private sector may be designated to endorse an applicant for the issuance of an LOA or for continued solo flight after a 6 calendar months period of inactivity. Such an endorsement may attest to an applicant's knowledge of the airplane to be flown, his/her flight proficiency, or both. Designated individuals are selected based upon their pilot history, flight experience in the type of surplus military turbine-powered airplane, standards, and integrity. Procedures for issuance of a letter of operational authority are contained in FAA Order 8700.1, Volume II, Chapter 32, Section 1, paragraph 23.

14. LIMITATIONS.

a. The appropriate provisions of FAR Parts 61 and 91 must be adhered to. Additional limitations to the LOA, other than those associated with an Experimental Exhibition Airworthiness Certificate, may be issued when considered necessary by the FAA. Examples of such limitations are as follows:

(1) Supersonic flight is not authorized.

(2) Aerobatic maneuvers are not authorized.

(3) VFR only.

The FAA may remove specific limitations when the applicant can justify to the FAA that the limitations are no longer necessary and that the appropriate training has been accomplished.

b. Pilots should be reminded that no person may operate an aircraft in formation flight,

except by arrangement with the pilot in command of each aircraft in the formation. Formation flight demands extreme vigilance on the part of the pilots involved. Therefore, before formation flight, a thorough preflight discussion is paramount to flight safety.

c. The holder of an LOA to operate turbine-powered airplanes may not exercise the privileges of that letter unless:

(1) Within the preceding 6 calendar months, the holder has made at least three takeoffs and landings in one of the models authorized or a comparable model; or

(2) After the 6 calendar months inactive period, the holder must obtain:

(i) A flight review including the normal and emergency (and abnormal if contained in the airplane's checklist) procedures and maneuvers in the particular type or comparable type; and

(ii) The endorsement by the holder of a current LOA, so authorized by the FAA, who has found the pilot competent to operate the airplane safely, or the endorsement of an organization that holds a letter of operational authority issued by the FAA.

d. A separate LOA shall be issued to the applicant for each type turbine-powered airplane. Superseded LOA's have no validity and should be surrendered. Except for a temporary LOA issued in accordance with paragraphs 8f or 9c, the duration of an initial LOA may not exceed 24 calendar months. A pilot who has held a current LOA to operate that type turbine-powered airplane for the preceding 24 months, who meets the recency of experience of paragraph 14c, and who has established a record of safe operations may have his/her LOA reissued for a period of 24 calendar months. Holders of expired letters in turbine-powered airplanes may have their letters reissued for a period of 24 calendar months provided they meet the recency of experience requirements of paragraph 14c(2), if able, or comply with the requirements for original issuance as previously outlined.

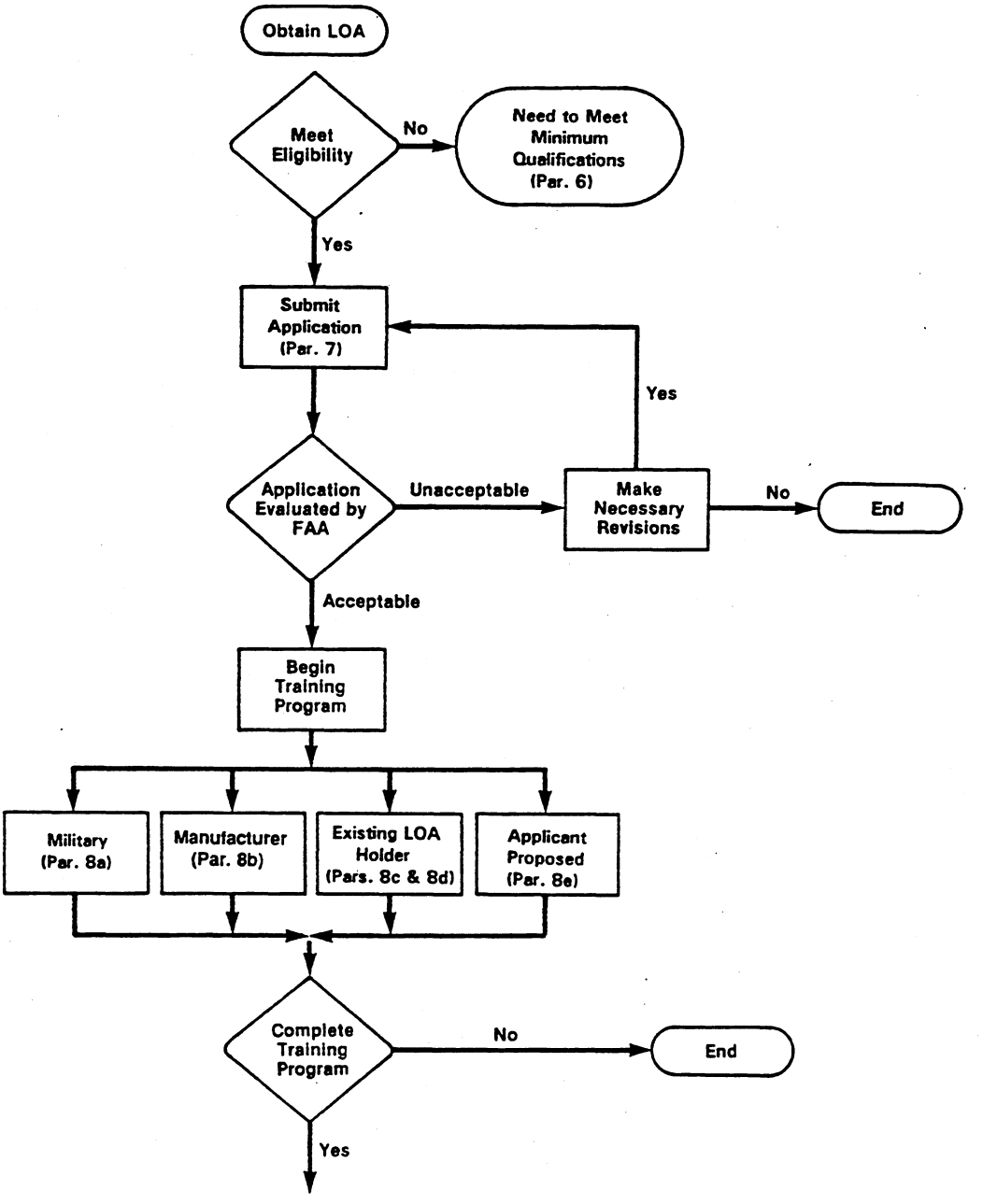
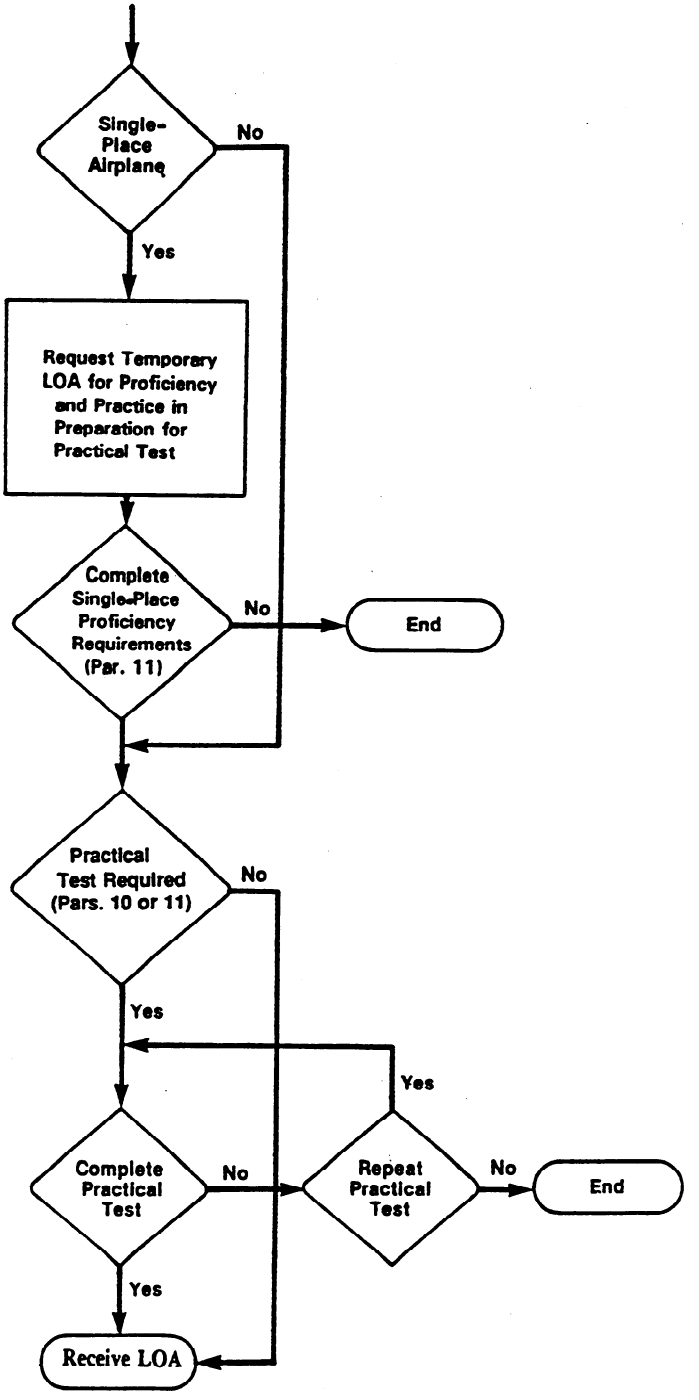
e. An applicant who desires instrument flight privileges must show compliance with the instrument flight competency specified in FAR § 61.63(d)(3). Otherwise, a VFR only limitation will be placed on the LOA. This limitation will be placed on the LOA for each type of airplane for which the applicant does not demonstrate instrument flight competency.

f. If the applicant holds an instrument rating for airplanes and supplies evidence of demonstration of instrument flight competency, and the airplane is properly equipped for instrument flight rules and not limited by the operating limitations, a VFR only limitation will not be placed on the LOA. Demonstration of instrument flight competency may be conducted in the airplane for which an LOA is sought or in a simulator or "comparably" equipped airplane. A "comparably" equipped airplane is described in paragraph 9b and should contain similar equipment to the airplane for which an LOA is sought for the instrument flight competency demonstration. This demonstration may be conducted in conjunction with that required by another operating rule or military instrument proficiency check. When the demonstration is conducted in a simulator or "comparably" equipped airplane, the applicant must demonstrate competency based solely upon the equipment/crew complement contained in the actual airplane. For example, if the airplane does not require a second in command or contain

an autopilot system, then the applicant may not utilize a second in command or an autopilot for the instrument flight competency demonstration. In the case of a single-place airplane, demonstration of instrument competency may be given in a simulator or two-place airplane that adequately duplicates the characteristics of the high performance turbine-powered airplane. The demonstration must have been accomplished in the preceding 6 months from date of application.

David R. Harrington
Acting Director, Flight Standards Service

APPENDIX 1. FLOW CHART - HOW TO OBTAIN AN LOA



APPENDIX 1. FLOW CHART - HOW TO OBTAIN AN LOA (Continued)