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FLIGHT TEST GUIDE

PRIVATE AND COMMERCIAL PILOT

Glider...

Revised 1967

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

PREFACE

This Flight Test Guide has been prepared by the Flight Standards Service of the Federal Aviation Administration in the Department of Transportation to assist applicants for private and commercial pilot flight tests in gliders.

It provides information concerning the performance of procedures and maneuvers required by Part 61 of the Federal Aviation Regulations which should be helpful to the applicant and his flight instructor in preparing for a test.

This revised edition supersedes the edition dated January 1962.

CONTENTS

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Glider—Private and Commercial Pilot

GENERAL INFORMATION

An applicant for the flight test for a pilot certificate with a glider rating is required by section 61.21 of the Federal Aviation Regulations to (1) have the flight experience required for the certificate or rating sought, (2) have passed the required written examination within 24 months, and (3) have a flight instructor's endorsement for the flight test (except in the case of a rated military or foreign licensed glider pilot).

He is required by FAR 61.25 to provide a certificated glider for the flight test. A two-place glider with dual controls is required.

The procedures and flight maneuvers required for glider ratings are listed in FAR 61.95 for private pilots and 61.125 for commercial pilots. This flight test guide only describes the required procedures and maneuvers, and the performance of each which will be accepted by the examiner[1] as evidence of competence.

[1]The word examiner is used in this guide to denote either an FAA Inspector or Designated Pilot Examiner who conducts an official flight test.

Each glider test is given in two phases. The failure of any required item constitutes the failure of the phase involved, and of the flight test. A test may be discontinued at any time by the examiner or the applicant when it becomes obvious that the successful completion of the test is impossible. In the event of failure or an incomplete test, the applicant must complete each phase of the test not successfully completed on the original test when he reapplies.

The section of the guide on each flight test item is arranged in three paragraphs, *Objective*, *Description*, and *Acceptable Performance:*

The *Objective* states briefly the purpose for which the procedure or maneuver is required on the flight test.

The *Description* explains the procedure or maneuver, and details the most effective way of accomplishing it to demonstrate that the objective has been accomplished.

The *Acceptable Performance* includes the factors taken into account by the examiner in deciding whether the applicant has met the objective, and the performance tolerances which denote a competent performance. The tolerances are not hard-and-fast, but represent the performance expected in good flying conditions in a typical glider.

The applicant's performance will be evaluated by the examiner on the basis of the judgment, knowledge, accuracy, an

smoothness displayed on the test. A competent performance of a flight maneuver is one in which the pilot is obviously the master of the glider, and the successful completion of the maneuver is never seriously in doubt.

The examiner will accompany the applicant in flight during his performance of stalls and slow flight. He may at his discretion accompany the applicant on other flights involved in the test, or observe them from the ground.

PRIVATE PILOT FLIGHT TEST

Phase I—Basic Techniques

1. Preflight Check

a. *Objective.* To demonstrate that the applicant can determine whether a glider is airworthy and ready for flight.

b. *Description.* The applicant will be requested to inspect a glider, as he would an unfamiliar glider just taken from a trailer and assembled for flight. He should use an orderly procedure in conducting a preflight check, preferably in accordance with a checklist provided by the manufacturer or operator. The check should cover the security of all attachment points, the rigging and operation of all control surfaces, the presence of required certificates and documents, and the airworthiness of all components so far as can be determined by external inspection.

c. *Acceptable Performance.* The applicant should know the significance of each item checked, and not overlook any obvious unairworthy condition. He should know the appropriate remedial action for a pilot to initiate for the correction of each unsatisfactory item detected.

2. Oral Equipment Test

a. *Objective.* To determine that the applicant has the practical operational

knowledge necessary to operate a glider safely.

b. *Description.* The applicant should display a practical knowledge of the operating limitations, placards, and performance characteristics of the glider to be used on the test. This demonstration should include the permissible loading, and ballast requirements if any. Maximum towline or weak link strength should also be covered.

c. *Acceptable Performance.* The applicant should be informed on all data essential to the safe operation of the glider. Any error in information on operating limitations on the hazardous side, or on the conservative side to an unreasonable extent is disqualifying, as is an inadequate knowledge of the necessary information.

3. Preflight Operations

a. *Objective.* To determine that the applicant can make adequate preparations for a safe glider flight.

b. *Description.* The applicant should demonstrate the preflight inspection and attachment of the launching and towing gear to be used for flight. He should describe and demonstrate the hand signals and in-flight signals to be used for launching and flight. Preparations should include the test operation of normal and emergency releases.

c. *Acceptable Performance.* The applicant should display the adequate pe

formance of all preparations appropriate to the glider and launching means to be used on the test. Overlooking any critical item, or inadequate and potentially hazardous procedures are disqualifying.

4. Auto, Pulley, Winch, or Airplane Tow

a. *Objective.* To demonstrate the ability to initiate a glider flight by any standard method for glider launching.

b. *Description.* Glider flights incident to a private flight test may be accomplished by any standard method of launching. On airplane tows, a high or low position may be used, but transition from one to the other, around and through the slipstream will be requested. The applicant should display a knowledge of emergency procedures and signals used in towed flight, including those for towline and release failures. On ground tows, release should be effected at least 500 feet above the ground.

c. *Acceptable Performance.* On ground tows, liftoff and climbout should be smooth and progressive throughout the tow, with release effected smoothly at an altitude equivalent to at least 70 percent of the extended length of the towline. On airplane tows, the applicant should follow the flight path of the airplane smoothly with a minimum of "bobbling," and break clear of its flight path on release. He should avoid, or take prompt corrective action for slack in the towline.

5. 180° Approaches to Landings

a. *Objective.* To determine the applicant's ability to make consistently safe approaches and landings with a glider.

b. *Description.* Approaches to landings should be made in accordance with the prescribed traffic pattern for the airport or gliderport used, continuing through at least a 180° change in heading. Landings should be completed in normal landing attitude within 200 feet beyond a line or mark prescribed by the examiner. Spoilers and moderate slips may be used on all approaches. The use of ground braking, including the nose skid, should be demonstrated.

c. *Acceptable Performance.* A constant airspeed and glide slope angle should be maintained throughout the approach, with only such changes as are necessary to correct errors in judgment. Violent maneuvering, the use of dangerously slow airspeed, and repeatedly touching down short of the designated line will be disqualifying.

Phase II—Stalls and Slow Flight

1. Stalls

a. *Objective.* To determine that the applicant can recognize promptly and recover safely from stalls in a glider.

b. *Description.* The applicant will be requested to demonstrate stalls entered from straight glides and turns in either direction. Recoveries should be initiated as soon as physical indications of a stall are detected. Recoveries should be made to straight and laterally level flight with the least loss of altitude consistent with the prompt restoration of control effectiveness.

c. *Acceptable Performance.* Performance will be evaluated on the basis of the applicant's ability to recognize a stall promptly, and to effect a smooth, safe recovery with the minimum loss of altitude consistent with safety.

2. Slow Flight

a. *Objective.* To determine that the applicant can recognize critically slow airspeeds, and control a glider effectively and safely at such speeds.

b. *Description.* The applicant will be requested to perform straight flight and moderately banked turns in either direction in gliding flight at such an airspeed

that any further reduction in speed would result in immediate indications of an incipient stall. Such indications may include buffeting, rapid increase in the sink rate, or rapid decay in control effectiveness.

c. *Acceptable Performance.* Performance will be evaluated on the applicant's ability to maintain a constant airspeed, maneuver the glider smoothly and accurately with proper coordination of the controls, and avoid unintentional stall. Any unintentional stall during the performance of slow flight will be disqualifying.

COMMERCIAL PILOT FLIGHT TEST

Phase I—Basic Techniques

1. Preflight Check

a. *Objective.* To demonstrate that the applicant can determine whether a glider is airworthy and ready for flight.

b. *Description.* The applicant will be requested to inspect a glider, as he would an unfamiliar aircraft just taken from a trailer and assembled for flight. He should use an orderly procedure in conducting his preflight check, preferably in accordance with a checklist provided by the manufacturer or operator. The check should cover the security of all fittings and attachment points, the proper operation of all controls, the presence of required documents, and the airworthiness of all components so far as can be determined by an external inspection.

c. *Acceptable Performance.* The applicant should know the significance of each item checked, and not overlook any obvious unairworthy condition. He should know the appropriate action for a pilot to initiate for the correction of each unsatisfactory item detected.

2. Oral Equipment Test

a. *Objective.* To determine that the applicant has the practical knowledge necessary to operate a glider safely.

b. *Description.* The applicant should display a practical knowledge of the operating limitations, placards, and performance characteristics of the glider to be used on the test. The function and correct usage of the launching gear to be used should be covered, with emphasis on towlines, weak links, and releases. This test should cover the permissible loading of the glider concerned, and ballast requirements, if any.

c. *Acceptable Performance.* The applicant should be familiar with all practical information necessary for the safe operation of the glider used on the test. Any error on the hazardous side in his explanations, or on the conservative side to an unreasonable extent is disqualifying, as is an inadequate knowledge of the necessary information.

3. Preflight Operations

a. *Objective.* To determine that the applicant can adequately prepare a glider and its associated equipment for flight.

b. *Description.* The applicant will be asked to demonstrate the proper assembly of the glider to be used for the flight test after it has been disassembled as would be necessary for transportation by trailer. He may enlist the assistance of others, but they are to work only und

his direction. The proper rigging of the towline, and testing of the release for free operation should be included.

c. *Acceptable Performance.* Performance will be evaluated on the basis of the accuracy of the applicant's operations, and the thoroughness of his flight preparations.

4. Auto, Pulley, or Winch Tow

a. *Objective.* To determine that the applicant can make correct, safe launches when towed by a line from the ground.

b. *Description.* At least two glider flights will be requested using an auto, auto pulley, or winch tow. Release should be effected at or above 500 feet, and each flight should include at least a 180° change in direction before landing.

c. *Acceptable Performance.* The applicant's performance will be evaluated on the basis of the smoothness of his liftoff and the efficiency of his climbout under tow. His performance should show that he understands the effect of up-elevator in increasing the airspeed while under tow from the ground. Release should be effected smoothly at an altitude equal to at least 70 percent of the extended length of towline, without imposing excessive structural loads on the glider.

5. Airplane Tow

a. *Objective.* To determine that the applicant can operate a glider safely and correctly when towed by an airplane.

b. *Description.* The applicant will be asked to make at least two glider flights launched by airplane tows, demonstrating flight above, below, to one side of, and through the slipstream of the towplane. Level cruising flight under tow as well as takeoffs and climbs will be requested. Procedures for taking up slack in the towline during straight flight and in turns should be demonstrated. The knowledge of emergency procedures and signals, and use of normal signals between the towplane pilot and the glider pilot should be demonstrated.

c. *Acceptable Performance.* The applicant should make smooth, normal liftoffs, follow accurately the flight path of the towplane, and make smooth breakways from the towplane's flight path upon release. The high tow position is preferred, but low tows are acceptable. Consistent excessive maneuvering on tow, retarding towplane performance by not following in the proper position, allowing slack in the towline, and faulty coordination are disqualifying.

6. 180° Approaches to Landing

a. *Objective.* To demonstrate that the applicant can maneuver a glider safely and accurately to a landing.

b. *Description.* The applicant will be asked to make at least three landings beyond and within 100 feet of a designated line from approaches extending through at least 180 degrees of change

heading. The normal glider pattern for the airport or glideport involved should be used. Spoilers and moderate slips may be used. Proper ground braking, including the use of the nose skid should be demonstrated.

c. *Acceptable Performance.* A constant airspeed and glide slope angle should be maintained throughout the approach, with only such changes as are necessary to correct errors in judgment. Violent maneuvering, the use of hazardously slow airspeeds, and repeatedly touching down short of the designated line will be disqualifying.

Phase II—Special Maneuvers

1. Three-Turn Spirals

a. *Objective.* To demonstrate the applicant's ability to maneuver a glider while maintaining his airspeed, attitude and orientation.

b. *Description.* The applicant will be asked to make three-turn spirals in either direction with a bank of at least 45 degrees. The airspeed should be constant, and the angle of bank may be constant or varied to stay within a thermal, if soaring conditions are encountered.

c. *Acceptable Performance.* The applicant should be able to maintain an airspeed within 5 knots of the minimum rate of sink speed, an angle of bank between 45 and 55 degrees, and recover within 20 degrees from the entering heading. The use of excessive or hazardouly slow airspeeds, prolonged slips or skids, and disorientation within the spiral will be disqualifying.

2. Stalls and Slow Flight

a. *Objective.* To determine that the applicant can recognize promptly and recover safely from stalls in a glider.

b. *Description.* The applicant will be requested to demonstrate stalls entered from straight glides and turns in eith

direction. Recoveries should be initiated as directed by the examiner when the first indications of a stall are detected. Recoveries should be completed in straight and laterally level glides, with the least loss of altitude consistent with the prompt restoration of control effectiveness.

c. *Acceptable Performance.* Performance will be evaluated on the basis of the applicant's ability to recognize a stall promptly, and to effect a smooth, safe recovery with the minimum loss of altitude consistent with safety.