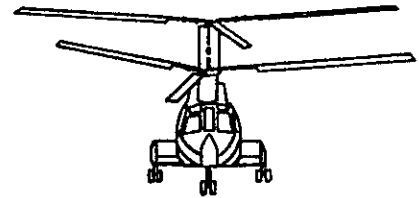


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Airline Transport Pilot

WRITTEN TEST GUIDE

AC 61-42A



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DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

PREFACE

This test guide was prepared by the Federal Aviation Administration as Advisory Circular AC 61-42A to assist applicants who are preparing for the Airline Transport Pilot, Rotorcraft/Helicopter (VFR and/or IFR) Written Tests. It supersedes the Airline Transport Pilot (Helicopter) Written Test Guide, AC 61-42, issued in 1968.

This guide describes the type and scope of required aeronautical knowledge covered in the written tests, lists reference materials available from retail GPO bookstores or from the U.S. Government Printing Office, and presents sample test items with answers and explanations.

Comments regarding this publication should be directed to the Department of Transportation, Federal Aviation Administration, Flight Standards Technical Division, P.O. Box 25082, Oklahoma City, Oklahoma 73125.

CONTENTS

| | <i>Page</i> |
|---|-------------|
| Preface | iii |
| Introduction | 1 |
| Requirements for Certificates and Ratings | 1 |
| Eligibility Requirements: General | 1 |
| Rotorcraft Rating: Aeronautical Knowledge | 2 |
| Rotorcraft Rating: Aeronautical Experience | 2 |
| The Written Tests | 3 |
| Taking the Tests | 3 |
| Reference Materials | 3 |
| How To Obtain GPO Publications | 4 |
| Study Outline | 7 |
| Sample Tests | 9 |
| Airline Transport Pilot Rotorcraft/Helicopter (VFR) Written Test | 9 |
| Airline Transport Pilot Rotorcraft/Helicopter (IFR) Written Test | 12 |
| Analyses of Answers to Sample Test Items | 17 |

APPENDIX

| | |
|--|----|
| Figure 1. Density Altitude Chart | 21 |
| Figure 2. Power Required to Hover—Out of Ground Effect | 23 |
| Figure 3. Landing Distance from 50-Ft. Height | 25 |
| Figure 4. Forward Climb Performance | 26 |
| Figure 5. Never Exceed Speed (V_{NE}) Chart | 27 |
| Figure 6. Center of Gravity Limits | 28 |

AIRLINE TRANSPORT PILOT (HELICOPTER) WRITTEN TEST GUIDE

Introduction

FAR Part 61 provides standards for the issuance of a rotorcraft (helicopter) instrument rating. In the airline transport pilot area, the holder of a rotorcraft (helicopter) rating is limited to "VFR only," and his certificate is so endorsed in the absence of instrument qualifications. However, this regulation further establishes aeronautical knowledge, experience, and skill standards to provide the basis for certifying helicopter pilots for instrument flight operations. Satisfaction of these requirements results in the elimination of the VFR restriction. Two qualifying written tests are therefore required, relating to the "VFR only," restriction and the removal of the restriction. These tests carry the following titles and coded designations:

Airline Transport Pilot, Rotorcraft/Helicopter (VFR)

Airline Transport Pilot, Rotorcraft/Helicopter (IFR)*

The purpose of the written tests is to evaluate the applicant's aeronautical knowledge in terms of the knowledge expected of a career pilot engaged in airline transport helicopter operations. The variety of equipment used and the number of unique operations to which the versatile helicopter may be adapted require a pilot to have a comprehensive background of information. As a result, the scope of the written tests is extremely broad.

The applicant is expected to know the essential components of rotary-wing systems and their aerodynamic functions. He must understand normal operating procedures, operating limitations, and emergency procedures. He must have a sound working knowledge of weather and of the problems associated with

operation under marginal weather conditions. Whether he flies a metropolitan route for an air carrier or flies cargo to a remote construction site, the helicopter pilot must be capable of evaluating the effect of the weather on his operation. When the airman has the skill and knowledge necessary to become rated as an airline transport helicopter pilot, he must accept greater responsibilities. As pilot in command, he is responsible for the lives of his passengers and for the property of the company or air carrier. His performance should therefore reflect the high level of proficiency expected of the professional pilot.

Requirements for Certificates and Ratings

For the convenience of the applicant, the eligibility, aeronautical knowledge, and experience requirements specified by the Federal Aviation Regulations are quoted below.

NOTE.—These requirements are reprinted from Part 61 of the Federal Aviation Regulations in effect at the time of final editing of this test guide.

"§ 61.141 Eligibility requirements: general.

To be eligible for an airline transport pilot certificate, a person must—

- (a) Be at least 23 years of age;
- (b) Be of good moral character;
- (c) Be able to read, write, and understand the English language and speak it without accent or impediment of speech that would interfere with two-way radio conversation;
- (d) Be a high school graduate, or its equivalent in the Administrator's opinion, based on the applicant's general experience and aeronautical experience, knowledge, and skill;
- (e) Have a first-class medical certificate issued under Part 67 of this chapter within the 6 months before the date he applies; and
- (f) Comply with the sections of this Part that apply to the rating he seeks."

* An applicant who holds an Airline Transport Pilot (Airplane) Certificate is not required to take the Airline Transport Pilot Rotorcraft/Helicopter (IFR) Written Test.

"§ 61.151 Rotorcraft rating: aeronautical knowledge.

(a) An applicant for an airline transport pilot certificate with a rotorcraft category and a gyroplane class rating, or a rotorcraft category and a helicopter class rating limited to VFR only must pass a written test on—

(1) So much of this chapter as relates to air carrier rotorcraft operations;

(2) Rotorcraft design, components, systems and performance limitations;

(3) Basic principles of loading and weight distribution and their effect on rotorcraft flight characteristics;

(4) Air traffic control systems and procedures relating to rotorcraft;

(5) Procedures for operating rotorcraft in potentially hazardous meteorological conditions; and

(6) Flight theory as applicable to rotorcraft.

(b) In addition to the requirements of paragraph (a) of this section, an applicant for an airline transport pilot certificate with a rotorcraft category and helicopter class rating not limited to VFR must pass a written test on the items listed under paragraphs (b) through (m) of § 61.143."

The paragraphs referred to above follow:

"(b) The fundamentals of air navigation and use of formulas, instruments, and other navigational aids, both in aircraft and on the ground, that are necessary for navigating aircraft by instruments;

(c) The general system of weather collection and dissemination;

(d) Weather maps, weather forecasting, and weather sequence abbreviations, symbols, and nomenclature;

(e) Elementary meteorology, including knowledge of cyclones as associated with fronts;

(f) Cloud forms;

(g) National Weather Service Federal Meteorological Handbook No. 1, as amended;

(h) Weather conditions, including icing conditions and upper-air winds, that affect aeronautical activities;

(i) Air navigation facilities used on Federal airways, including rotating beacons,

course lights, radio ranges, and radio marker beacons;

(j) Information from airplane weather observations and meteorological data reported from observations made by pilots on air carrier flights;

(k) The influence of terrain on meteorological conditions and developments, and their relation to air carrier flight operations;

(l) Radio communication procedure in aircraft operations; and

(m) Basic principles of loading and weight distribution and their effect on flight characteristics."

"§ 61.153 Rotorcraft rating: aeronautical experience.

(a) An applicant for an airline transport pilot certificate with a rotorcraft rating must hold a commercial pilot certificate, or its equivalent as determined by the Administrator.

(b) In addition, such an applicant must have had at least 1200 hours of flight time as a pilot within the 8 years before the date he applies including at least—

(1) 5 hours in rotorcraft within the 60 days before that date;

(2) 500 hours of cross-country flight time;

(3) 100 hours at night, including at least 15 hours in rotorcraft; and

(4) 200 hours in rotorcraft, including at least 75 hours as pilot in command or as second in command performing the duties and functions of a pilot in command under the supervision of a pilot in command, or any combination thereof.

(c) In addition to the requirements of paragraphs (a) and (b) of this section, an applicant for an airline transport pilot certificate with a rotorcraft category and a helicopter class rating not limited to VFR must have at least 75 hours of instrument time under actual or simulated instrument conditions of which at least 50 hours were completed in flight with at least 25 hours in helicopters as pilot in command, or as second in command performing the duties and functions of a pilot in command under the supervision of a pilot in command, or any combination thereof."

The Written Tests

Both of the tests for the ATP Rotorcraft/Helicopter Ratings are of the single-section type. Test items are of the objective, multiple-choice type like those shown in the sample tests in this guide. Because the Airline Transport Pilot (Helicopter) Certificate is issued with a "VFR restriction," this test stresses areas of aeronautical knowledge appropriate to this limitation. The test required for the removal of the VFR restriction emphasizes instrument flight procedures and related techniques.

When the applicant takes the tests, appropriate planning materials, in a supplementary booklet may be issued to him; certain materials may also be included in the test booklet. Similar materials for illustrative purposes are included in the appendix of this test guide.

The applicant should read carefully the directions for taking the particular test and for recording his answers on the special answer sheet. Personal and other information should be accurately entered in the appropriate spaces on the answer sheet.

Test grades are mailed to applicants on AC Form 8060-37, Airman Written Examination Report. The report also contains coded indicators of the knowledge areas which presented difficulty in the test. These coded indicators are related to an enclosed Written Examination Subject Matter Outline for quick and easy identification of knowledge deficiencies. The study outline contained in this guide is similar to the Written Examination Subject Matter Outline which the applicant receives with AC Form 8060-37. An applicant who receives a failing grade must present the appropriate AC Form 8060-37 for retesting.

Taking the Tests

The tests may be taken at Flight Standards District Offices of the Federal Aviation Administration and at other designated places.

Consider the following points while taking the tests:

1. Test items should be answered in accordance with the latest regulations and procedures.
2. Read every question thoroughly. Comments received from test applicants indicate

that unsatisfactory performance on written tests is frequently the result of failure to read carefully rather than lack of knowledge. Do not try to solve the problem before understanding the question.

3. Do not consider a complicated problem a "trick" question; each question has a specific objective. There are no trick questions.

4. There is only one correct and complete answer for each item.

5. Do not waste time on difficult problems. Go on to the questions that you can answer readily, then return to the difficult items.

6. For a computer problem, select the answer closest to your own solution. If you have solved the problem correctly, your answer will be closer to the correct answer than to any of the other choices. The correct answer is an average of solutions obtained by using several types of computers.

Reference Materials

The following list of publications and materials is provided as a basic guide for the benefit of persons who wish to prepare for the written tests. All of these items may be obtained from a retail GPO bookstore or from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. Textbooks and other reference materials are also available from many commercial publishers. It is the responsibility of each applicant to obtain the study materials appropriate to his needs.

The applicant should also be familiar with a representative transport category helicopter flight manual. The professional helicopter pilot will also find useful information in publications and trade periodicals issued by various manufacturers of rotary-wing aircraft.

In the rapidly expanding helicopter industry, much information is available about changes in design, refinements of control, and improvements in helicopter performance. Manufacturers and helicopter flight schools frequently have material of interest that is available upon request.

FEDERAL AVIATION REGULATIONS

The subscription prices listed include automatic revision service to all Parts contained

in the Volume ordered. The FAR Parts contained in each Volume are listed in the "Advisory Circular Checklist and Status of Federal Aviation Regulations," available free on request from: Department of Transportation, Distribution Unit, TAD 484.3, Washington, D.C. 20590.

| | Price | Additional for Foreign Mailing |
|--|---------|---|
| Vol. I, Part 1, <i>Definitions and Abbreviations</i> | \$ 1.50 | \$0.50 |
| Vol. IX, Part 61, <i>Certification: Pilots and Flight Instructors</i> | \$ 6.00 | \$1.50 |
| Vol. VI, Part 91, <i>General Operating and Flight Rules</i> | \$ 5.50 | \$1.25 |
| Vol. VII, Part 127, <i>Certification and Operations of Scheduled Air Carriers with Helicopters</i> | \$ 6.50 | \$1.75 |

AIRMAN'S INFORMATION MANUAL (AIM)

This publication presents, in four parts, information necessary for the planning and conduct of flights in the National Airspace System. Besides providing frequently updated airport and NAVAID data, the AIM includes instructional and procedural information, and is designed for use in the cockpit. Each part is available by annual subscription at the prices shown.

| | Price | Additional for Foreign Mailing |
|--|---------|---|
| Part 1, <i>Basic Flight Manual and ATC Procedures</i> . (Issued quarterly) .. | \$ 4.00 | \$1.00 |
| Part 2, <i>Airport Directory</i> . (Issued semiannually) | \$ 4.00 | \$1.00 |
| Parts 3 and 3A, <i>Operational Data and Notices to Airmen</i> . (Operational data issued every 28 days; Notices to Airmen issued every 14 days) .. | \$20.00 | \$5.00 |
| Part 4, <i>Graphic Notices and Supplemental Data</i> (Issued semiannually) | \$ 1.50 | \$0.50 |

HANDBOOKS

Basic Helicopter Handbook, AC 61-18 (75¢—GPO—FAA 5.8/2:H 38). This handbook was developed by the Flight Standards Service of the Federal Aviation Administration to assist applicants preparing for helicopter written tests. It presents essentials of helicopter aerodynamics, basic performance characteristics, and analyses of flight maneuvers.

Instrument Flying Handbook, AC 61-27B (\$2.50—GPO—TD 4.8:In 7/2/971). This is a basic text for instrument pilots. It deals with training considerations, aerodynamic factors, physiological factors, flight instruments and their use, air navigation aids, communications, the air traffic system, and flight planning.

Aviation Weather, AC 00-6 (\$4.00—GPO—FAA 5.8/2:W 37). An excellent reference treating phases of meteorology of interest to the pilot. Aviation weather reports and forecasts are also covered with respect to format and content.

Pilot's Weight and Balance Handbook, AC 91-23 (70¢—GPO—TD 4.408:P 64/3). Presented from the viewpoint of the pilot, the text progresses from an explanation of basic fundamentals to the complex application of weight and balance principles in helicopters and large aircraft.

How To Obtain GPO Publications

(1) Use an order form, not a letter unless absolutely necessary. Order forms, which may be duplicated by the user, are included in the catalog "FAA Publications," sent free upon request from:

Department of Transportation
Distribution Unit, TAD 484.3
Washington, D.C. 20590

(2) Send separate orders for subscription and non-subscription items.

(3) Give the exact name of the publication and in the case of a single publication the GPO catalog number, e.g., TD 4.408:In 7/3 or FAA 5/8:W 37.

(4) Send a check or money order made payable to the Superintendent of Documents. Send the exact amount (no cash).

(Include an additional 25 percent of the total order to cover postage for foreign mailing.)

(5) Enclose a self-addressed mailing label if you have no order blank.

(6) Use special delivery when needed.

(7) Use GPO bookstores.

Several retail bookstores for GPO publications have been established throughout the country. The GPO bookstores are located at the following addresses:

GPO Bookstore
2121 8th Ave. North
Birmingham, Ala.
35203

GPO Bookstore
Federal Building
Room 1015
300 N. Los Angeles St.
Los Angeles, Calif.
90012

GPO Bookstore
Federal Building
Room 1023
450 Golden Gate Ave.
San Francisco, Calif.
94102

GPO Bookstore
Federal Office
Building
Room 1463 14th Floor
219 South Dearborn
St.
Chicago, Ill. 60604

GPO Bookstore
Room G-25
J.F.K. Federal
Building
Government Center
Boston, Mass. 02203

GPO Bookstore
Federal Building
Room 1421
1961 Stout St.
Denver, Colo. 80202

GPO Bookstore
Pueblo Memorial
Airpark
Pueblo, Colo. 81001

GPO Bookstore
Federal Building
Room 100
275 Peachtree St.,
N.E.
Atlanta, Ga. 30303

GPO Bookstore
Federal Building
Room 135
601 East 12th Street
Kansas City, Mo.
64108

GPO Bookstore
26 Federal Plaza
Room 110
New York, N.Y. 10007

GPO Bookstore
Federal Building
U.S. Courthouse
Room 1C46
1100 Commerce St.
Dallas, Tex. 75202

Mail orders may also be directed to the Washington headquarters of the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

STUDY OUTLINE

This study outline indicates the areas of aeronautical knowledge which pertain to the Airline Transport Pilot Rotorcraft/Helicopter (VFR and IFR) Written Tests. Every item on these tests is related to topics listed in this outline.

FEDERAL AVIATION REGULATIONS

- A. FAR 61—Certification: Pilots and Flight Instructors
 - A01. Subpart A—General
 - A02. Subpart E—Airline Transport Pilots
- B. FAR 91—General Operating and Flight Rules
 - B01. Subpart A—General
 - B02. Subpart B—General
 - B03. Subpart B—Visual Flight Rules
 - B04. Subpart B—Instrument Flight Rules
 - B05. Subpart C—Maintenance, Preventive Maintenance, and Alterations
- C. FAR 127—Certification and Operations of Scheduled Air Carriers with Helicopters
 - C01. Subpart B—Certification: Operations specifications
 - C02. Subpart C—Requirements for services and facilities
 - C03. Subpart D—Air carrier manuals
 - C04. Subpart E—Helicopter requirements
 - C05. Subpart F—Operating limitations
 - C06. Subpart G—Special airworthiness requirements
 - C07. Subpart H—Instrument and equipment requirements
 - C08. Subpart J—Airman and crewmember requirements
 - C09. Subpart K—Training programs
 - C10. Subpart L—Flight crewmember qualification
 - C11. Subpart M—Flight time limitations
 - C12. Subpart N—Flight operations

- C13. Subpart O—Flight release rules
- C14. Subpart P—Records and reports

ROTARY-WING AERODYNAMICS AND FLIGHT THEORY

- D. General Aerodynamics
 - D01. Weight and lift
 - D02. Thrust and drag
 - D03. Airfoils
- E. Rotary-Wing Aerodynamics
 - E01. Rotor system details
 - E02. Modes of control
 - E03. Stability characteristics
 - E04. Vibrations
- F. Helicopter Power Flight
 - F01. Torque and torque control
 - F02. Dissymmetry of lift—blade operation in varying flight conditions
 - F03. Hovering and ground effect
 - F04. Translation
 - F05. Rotor disc—loading, coning, and flapping
 - F06. Airfoil shape and response to control action
 - F07. Control action and sensitivity
 - F08. Settling with power
 - F09. Ground resonance
 - F10. Speed limitations
 - F11. Autorotation particulars
 - F12. Drag characteristics
 - F13. Trim devices
 - F14. Factors affecting performance

FLIGHT PLANNING AND OPERATING PROCEDURES

- G. Aviation Weather
 - G01. Air mass and frontal characteristics
 - G02. Thunderstorm features
 - G03. Icing hazards
 - G04. Aviation weather reports
 - G05. Aviation weather forecasts
 - G06. Wind and pressure systems
 - G07. Fog
 - G08. Pressure and density altitude

- G09. Effect of temperature on altitude
- G10. Weather depiction chart
- H. Computations and Procedures
 - H01. Flight time
 - H02. Fuel requirements
 - H03. Headings, courses, and ETAs
 - H04. Weight and balance
 - H05. Performance charts
 - H06. Takeoff, approach, and landing techniques
 - H07. Ground operation techniques
 - H08. Confined area operation—pinnacle, barrier, slope
 - H09. Antitorque system failure
 - H10. Roof-top approaches

AIRMAN'S INFORMATION MANUAL

- I. Basic Flight Manual
 - I01. Glossary of Aeronautical Terms
 - I02. Air Navigation Radio Aids
 - I03. Airport, Air Navigation Lighting and Marking Aids
 - I04. Altimetry
 - I05. Radar
 - I06. Weather
 - I07. Safety of flight
 - I08. Medical facts for pilots
- J. Air Traffic Control Procedures
 - J01. Preflight
 - J02. Departure
 - J03. Enroute
 - J04. Arrival
 - J05. Landing
 - J06. General
 - J07. Emergency procedures
 - J08. Interpretation of data on instrument approach charts

- J09. Interpretation of data on enroute charts
- J10. Instrument approach procedures
- J11. Airport/Facility Directory
- J12. Preferred routes
- J13. NOTAMS
- J14. Restrictions to enroute navigation aids

AIR NAVIGATION AIDS—OPERATION AND USE

- K. VOR/VORTAC/TACAN
 - K01. Absence of coded identification
 - K02. Indication of station passage
 - K03. Information provided
 - K04. Orientation and time/distance
 - K05. Interpretation of instrument indications
 - K06. CDI full scale deflection
 - K07. Interference and altitude effects
- L. Instrument Landing System
 - L01. Components
 - L02. Interpretation of instrument indications
 - L03. Flight techniques
 - L04. Orientation
 - L05. Compass locators
 - L06. ADF orientation and/time distance

FLIGHT INSTRUMENTS

- M. Operation and Use
 - M01. Heading indicators
 - M02. Altimeter and vertical speed
 - M03. Attitude indicator
 - M04. Flight director systems
 - M05. Turn and slip indicator
 - M06. Airspeed and machmeter

SAMPLE TESTS

The sample tests which follow are provided to familiarize the applicant with the type of test items contained in the official FAA written tests. It is important to remember, however, that these test items do not direct attention to all of the topics on which you will be tested in the official tests. For this reason, you should concentrate on the test outline presented in another section of this guide. A knowledge of all of the topics presented in the outline—not just the ability to answer these few sample test items—should be your goal as you prepare for the written tests in either of the two rating areas.

Answers to the sample test items are presented in the section of this guide following the sample test. Also presented are analyses, or explanations, of each test item.

NOTE.—The reader should be aware that the sample test items and certain other material are based on regulations and procedures in effect at the time of final editing of this guide. Similar test items in the official FAA written tests should always be answered in terms of current regulations and procedures.

I

Airline Transport Pilot Rotorcraft/Helicopter (VFR) Written Test

1. A multiengine air carrier helicopter pilot must reestablish route qualification after absence from a route for more than ——— consecutive months.

- 1—three.
- 2—six.
- 3—nine
- 4—twelve.

2. A minimum number of fire extinguishers are required for passenger-carrying helicopters operating under FAR Part 127. The minimum number required for a helicopter designed to accommodate twelve passengers is

- 1—one.
- 2—two.

3—three.

4—four.

3. A pilot is qualified as pilot in command in one type helicopter on June 15, 1971. To remain qualified, he must take his next proficiency check no later than the last day of

- 1—June 1972.
- 2—April 1972.
- 3—December 1971.
- 4—January 1972.

4. Of the following, which discrepancies must be corrected prior to release of a scheduled air carrier helicopter for a night flight?

- A. Inoperative clock.
 - B. Transmission oil pressure indicator inoperative.
 - C. Noncontrollable landing light inoperative.
 - D. Gyroscopic rate of turn inoperative.
- 1—B, C, and D only
 - 2—A, B, C, and D
 - 3—A, B, and C only
 - 4—C and D only

5. You may act as pilot in command of a scheduled air carrier helicopter flight if you hold

- 1—a Commercial Pilot Certificate with an instrument rating.
- 2—a Commercial Pilot Certificate and a helicopter rating.
- 3—an Airline Transport Pilot Certificate with a type rating for the helicopter to be flown.
- 4—an Airline Transport Certificate.

6. No air carrier may operate a helicopter VFR at night unless meteorological conditions permit

- 1—sufficient visual reference to unlighted terrain to permit proper control of the helicopter.
- 2—sufficient forward visibility for proper control of the helicopter without the use of flight instruments.

3—proper control of the helicopter by reference to lights on the ground.

4—unrestricted flight on top of an overcast condition.

7. Regardless of any ATC clearance issued, no air carrier helicopter operating under VFR may take off if the reported ceiling and ground visibility is less than

1—that specified in the air carrier's operations specifications.

2—500 feet and $\frac{1}{2}$ mile.

3—700 feet and 1 mile.

4—Standard Takeoff Minimums.

8. An air carrier shall relieve each flight crewmember engaged in scheduled air transportation from all duty for at least

1—12 consecutive hours at least once during any 5 consecutive days of flight duty.

2—48 consecutive hours after any 7 consecutive days of flight duty.

3—18 consecutive hours following an assignment to flight duty for 5 consecutive days.

4—24 consecutive hours at least once during any 7 consecutive days.

9. According to FAR Part 127, a new flight release is required when a flight remains at an intermediate heliport for more than

1—90 minutes.

2—45 minutes.

3—60 minutes.

4—2 hours.

10. The operation of a particular air carrier helicopter flight in compliance with the operations specifications is the responsibility of the

1—dispatcher and the pilot in command jointly.

2—dispatcher.

3—operations office.

4—pilot in command.

11. For VFR operations, what is the minimum fuel supply that must be entered on the flight release, assuming the following conditions?

Fuel required for warmup
and takeoff ----- 80 lbs.

Average fuel consumption at
normal cruise ----- 10 lbs./min.

Extra for anticipated traffic and
intermediate stop delays ----- 115 lbs.

Stage lengths are,
respectively ---- 18, 24, and 28 minutes

Enroute time between destination
heliport and alternate heliport
for destination ----- 12 minutes

1—900 pounds

2—968 pounds

3—1,095 pounds

4—1,147 pounds

12. Which statement is true regarding air "stability"?

1—Stable air, if forced to ascend, will form clouds with considerable vertical development.

2—If air is subsiding (sinking), the heat of compression frequently causes an inversion of temperature, resulting in increased stability.

3—An area of persisting poor visibility due to smoke and haze is usually due to air being saturated and unstable.

4—An unsaturated air mass, heated from below, tends to become more stable.

13. Select the true statement regarding the effects of meteorological conditions on helicopter performance.

1—Assuming a constant outside air temperature, hovering ceiling increases with an increase of relative humidity.

2—A helicopter can lift off to a hover at a higher gross weight, under conditions of high temperature/high humidity, than it can under conditions of high temperature/low humidity.

3—High moisture content reduces air density and thereby reduces helicopter performance.

4—After a helicopter enters effective translational lift, the existing density altitude has no effect on the rate of climb.

14. Which of the following are required for the development of a thunderstorm?

A. Stable air.

B. Unstable air.

C. High moisture content.

D. A lifting force.

E. A front.

- 1—A, C, and D only
- 2—B and D only
- 3—B and E only
- 4—B, C, and D only

15. Which of the following describes the flow of air in a low pressure system?

- 1—Converging and descending.
- 2—Diverging and descending.
- 3—Converging and ascending.
- 4—Diverging and ascending.

16. Which statement is true regarding the wake turbulence generated by large fixed-wing aircraft? The wing-tip vortices

- 1—are most severe behind an airplane cruising at high subsonic speeds.
- 2—sink at 400 to 500 feet per minute until they reach the ground where they immediately dissipate due to surface friction.
- 3—rotate in a direction that causes the air between them to be forced upward violently.
- 4—are most severe behind a heavy airplane, in clean configuration, moving slowly.

17. Rime ice formation is usually associated with which of the following conditions?

- 1—Stratiform clouds.
- 2—Large supercooled water droplets.
- 3—Temperatures only slightly below freezing.
- 4—Cumuliform clouds.

18. An excerpt from an Area Forecast for Illinois appears below:

CLDS AND WX..

ILL.

OVR N AND E THREE QTRS ILL
C2-5@1/4-3F OCNL R-- OR L-- IPVG
FM SW TO C10-15@V@30-40@ BY
17Z-19Z.

OVR SW QTR C45-55@V@ BCMG
40-60@3000@ BY 17Z. TOPS LYRS
80-110.

Which of the following statements is correct?

- 1—Occasional light rain or sleet can be expected in northeast Illinois at the beginning of the forecast period.
- 2—By 17Z, the ceilings are forecast to lower from 4,500 feet to 4,000 feet over the southern quarter of Illinois.

3—The ceilings over northeast Illinois are forecast to improve by 19Z.

4—The base of the top layers of clouds over southwest Illinois is 800 to 1,100 feet.

* * * * *

Certain of the following test items are based upon performance charts and other data contained in the appendix of this guide. You will be directed to the appropriate source to derive the information required. This material is reproduced from an approved FAA Flight Manual pertaining to a transport category helicopter of single rotor design, powered by dual turbine engines.

* * * * *

19. Assume the altimeter setting is 29.75, the pressure altitude of the heliport is 2,200 feet, and the temperature is +25° C. What is the density altitude? (Use Density Altitude Chart in Appendix, Figure 1, or a navigation computer.)

- 1—3,900 feet
- 2—3,600 feet
- 3—2,800 feet
- 4—4,300 feet

20. Determine the power required to hover out of ground effect under the following conditions (Appendix, Figure 2).

Pressure altitude ----- 1,000 feet
Gross weight ----- 18,000 pounds
Temperature ----- +20° C.
Rotor speed ----- 100%
Headwind ----- 15 knots

- 1—1,920 s. hp.
- 2—2,000 s. hp.
- 3—1,800 s. hp.
- 4—2,160 s. hp.

21. Determine the pressure altitude at which forward climb performance is reduced to 100 feet per minute, assuming the following conditions (Appendix, Figure 4).

Maximum continuous power
Gross weight: 16,000 pounds
Temperature: +50° C.

- 1—6,200 feet
- 2—4,900 feet
- 3—5,200 feet
- 4—5,800 feet

22. Determine the landing distance from a 50-foot height to a stop with one engine inoperative, under the following conditions (Appendix, Figure 3).

Gross weight ----- 17,500 pounds
 Pressure altitude ----- 500 feet
 Approach speed ----- 25 knots IAS
 Approach R.O.D. ----- 1,200 f.p.m.
 Temperature ----- +30° C.
 Zero wind
 1—330 feet
 2—350 feet
 3—325 feet
 4—380 feet

23. What is the Never Exceed Speed (V_{NE}) under the following conditions (Appendix, Figure 5)?

Pressure altitude ----- 2,500 feet
 Takeoff gross weight ----- 18,500 pounds
 Temperature ----- +30° C.
 1—110 knots
 2—126 knots
 3—114 knots
 4—122 knots

24. Consider the following weight and balance data:

| Item | Weight | Moment/100 |
|--------------------|---------------|---------------|
| Empty weight ----- | 11,950 | 30,250 |
| Crew ----- | 320 | 284 |
| Fuel ----- | 1,800 | 4,588 |
| Passengers ----- | 3,910 | 11,859 |
| Baggage ----- | 250 | 371 |
| | <u>18,230</u> | <u>47,352</u> |

Referring to the Center of Gravity Limits Chart (Appendix, Figure 6), you determine that the center of gravity is located

1—1.0 inches aft of the forward c.g. limit.
 2—262.6 inches aft of the datum.
 3—259.7 inches aft of the datum.
 4—at the forward c.g. limit.

25. Assume that 300 pounds of fuel are drained from the forward tank, which is 203.9 inches aft of the datum. The amount, and direction of displacement of the center of gravity is

1—no displacement.
 2—1.6 inches aft displacement.
 3—2.2 inches forward displacement.
 4—.9 inch aft displacement.

26. Which of the following is included in the "basic operating weight"?

1—Crew
 2—Cargo
 3—Passengers
 4—Fuel

27. In a fully-articulated three-bladed rotor system, the lead-lag (drag) hinge compensates for

1—transverse flow effect.
 2—coriolis effect.
 3—compressibility effect.
 4—translating tendency.

28. To recover from "settling with power" with the least loss of altitude, the pilot should

1—fully reduce collective pitch and increase rotor r.p.m.
 2—increase collective pitch moderately and decrease rotor r.p.m.
 3—increase forward speed and partially lower collective pitch.
 4—reduce forward speed and reduce rotor r.p.m.

29. In most helicopters, the V_{NE} (never exceed) speed

1—is lower at high altitude than at low altitude.
 2—is constant at all altitudes.
 3—increases as altitude increases.
 4—increases up to critical altitude, then remains constant.

30. The vectorially combined forces of lift and centrifugal force result in

1—coriolis effect.
 2—flapping.
 3—hunting.
 4—coning.

II

Airline Transport Pilot Rotorcraft/Helicopter (IFR) Written Test

1. FAR Part 127 requires that the pilot in command of an air carrier helicopter pass

1—a proficiency check each 6 calendar months.
 2—a line check each 6 calendar months.

3—either a proficiency check or a line check, or both checks concurrently, each 90 days.

4—a spot check, given by an FAA designated air carrier helicopter check pilot, at least each 120 days.

2. You may meet the “recency of experience” requirements to serve as pilot in command of a scheduled air carrier helicopter under IFR conditions by which of the following?

A. Three hours of actual instrument flight time in a helicopter and 3 hours in a synthetic trainer in the preceding 6 months.

B. Three hours actual instrument flight time and 3 hours under simulated instrument conditions in a helicopter in the preceding 6 months.

C. Six hours of instrument flight time, half of which may be in an airplane, in the preceding 6 months.

D. Six hours of actual instrument flight time in an airplane during the preceding 6 months.

1—A and B only.

2—A, B, and C only.

3—B only.

4—A, B, C, and D.

3. The weather requirements for operation of a scheduled air carrier helicopter under IFR are set forth in

1—the air carrier’s operations specifications.

2—FAR Part 127.

3—the air carrier manual.

4—FAR Part 91.

4. When using a VOT (VOR test facility) to check a VOR receiver, you should tune in the facility and center the course deviation indicator. The receiver accuracy is then determined by noting the omni-bearing selector deviation from

A. 0° with the TO-FROM indicator reading “FROM.”

B. 180° with the TO-FROM indicator reading either “TO” or “FROM.”

C. 180° with the TO-FROM indicator reading “FROM.”

D. 180° with the TO-FROM indicator reading “TO.”

1—A only.

2—B only.

3—C only.

4—A or D only.

5. Which statement is true concerning the runway and wind information you receive from ATIS? The runway is numbered to correspond to its

1—true bearing and the surface wind is magnetic.

2—magnetic bearing and the surface wind direction is true.

3—magnetic bearing and the surface wind direction is magnetic.

4—true bearing and the surface wind direction is true.

6. An “abbreviated IFR departure clearance” always includes the

1—appropriate SID.

2—assigned altitude or flight level.

3—first compulsory reporting point.

4—destination airport.

7. Which of the following reports should be made to ATC without request?

1—A revised ETA if that previously submitted is in error 2 minutes or more.

2—When an altitude change is made if operating on a clearance specifying “VFR conditions-on-top.”

3—When the procedure turn is completed.

4—At the MDA, when performing a non-precision approach.

8. If you, as pilot in command of a scheduled air carrier helicopter flight, declare an emergency and deviate from prescribed operations procedures, you

1—are required to make a verbal report of the incident to the supervising inspector of the appropriate Air Carrier District Office within 10 days.

2—must send a written report through the air carrier’s director of operations to the Administrator within 10 days after the flight is completed.

3—are required to report the incident to your company’s chief pilot.

4—must file a written report with the air carrier's director of operations within 7 days.

9. How should you determine the Minimum Descent Altitude (MDA) or Decision Height (DH) from an approach chart that states the landing minimums in terms of ceiling and visibility (old format)?

1—Subtract the field elevation from the minimum ceiling.

2—Add the field elevation to the minimum ceiling.

3—Use the value of the minimum ceiling.

4—Use the lowest altitude depicted on the profile view of the approach.

10. You may receive scheduled weather broadcasts including Notices to Airmen information

1—15 minutes past each hour on NAVAID voice channels.

2—15 minutes and 45 minutes past each hour on VOR, VORTAC, and radio beacon frequencies.

3—30 minutes past each hour on NAVAID and ARTCC frequencies.

4—15 minutes past each hour on FAA control tower frequencies.

11. Assume that you are operating in IFR conditions, have lost two-way radio communications capability, and that you have determined that you will arrive at your destination 5 minutes later than your flight plan ETA. Under these conditions, you should begin your descent from your last assigned altitude

1—to the minimum enroute altitude (MEA) at your flight plan ETA.

2—upon reaching the fix from which the approach begins.

3—so as to arrive over the fix from which the approach begins, at the published initial approach altitude.

4—5 minutes after reaching the fix from which the approach begins.

12. Should you lose two-way radio capability, you should adjust your transponder to Code

1—0000.

2—0300.

3—7600.

4—7700.

13. The term "CRUISE," when used in an ATC clearance,

1—has essentially the same meaning as "MAINTAIN."

2—is normally used only for a long flight and may be interpreted by the pilot to mean that he will probably not have an altitude assignment change.

3—signifies to the pilot that he is authorized to proceed to, and make an approach at, his destination.

4—signifies to the pilot that he is to remain at his assigned altitude until he receives further clearance.

14. Which statement is true regarding inoperative ILS components? The Decision Height (DH) is

1—increased if the middle marker is inoperative, even though precision radar is available.

2—not increased by an inoperative middle marker, if surveillance radar is available.

3—increased if the outer marker is inoperative, even though surveillance radar is available.

4—not increased by an inoperative outer marker, if a compass locator is installed and functioning.

15. In a radar environment, ATC may assign an aircraft a "Visual Approach." Which of the following statements is applicable to this type approach?

1—The visibility must be at least 1 statute mile.

2—To be assigned a "Visual Approach," the pilot must specifically request it.

3—The visibility must be at least 3 statute miles.

4—A reported ceiling of 800 feet or more is required.

16. Which statement is true regarding Standard Terminal Arrival Routes (STARs)?

1—STARs provide written descriptions of arrival routes and altitudes only.

2—STARs are published exclusively for those airports having published SIDs.

3—A pilot of a general aviation aircraft will be issued a STAR only if he requests it.

4—A pilot of a civil aircraft, operating under IFR, may be issued a STAR whenever ATC determines it is appropriate.

17. If a VOR approach is "radar-monitored," the

1—prescribed minimums are identical to those for a VOR approach without radar monitoring.

2—"MDA" is lower than otherwise prescribed.

3—ceiling and visibility minimums are lower than otherwise prescribed.

4—"RVR" is lower than otherwise prescribed.

18. If ATC clears you for a VOR/DME approach and you have an inoperative DME, you

1—should refuse this approach and request one appropriate for your equipment.

2—may execute the approach if you can determine the DME fixes by VOR radials or ADF bearings.

3—may execute the approach using only the VOR information from the approach chart and increasing the minimums by 100 feet.

4—may execute the approach using the prescribed minimums if radar monitoring is available.

19. You are on final approach for a runway that has a standard 2-bar Visual Approach Slope Indicator (VASI) in operation. If you are on glide slope, you will see

1—WHITE WHITE

WHITE WHITE

2—RED RED

WHITE WHITE

3—WHITE WHITE

RED RED

4—RED RED

RED RED

20. Assume you lose communications with the control tower during an approach. If the tower controller gives you an alternating red and green light, you should

1—exercise extreme caution while continuing your approach.

2—initiate an immediate go-around.

3—depart the pattern because the field is closed.

4—continue your approach as you would normally, since this is merely the "loss-of-communication" signal.

ANALYSES OF ANSWERS TO SAMPLE TEST ITEMS

I

Airline Transport Pilot Rotorcraft/Helicopter (VFR) Written Test

1—(4) The reference is FAR 127.181. Note that a multiengine helicopter pilot must re-establish route qualifications following a 12-month absence from a route. For a single-engine helicopter pilot, a 6-month period is specified.

2—(2) The reference is FAR 127.107.

3—(4) The reference is FAR 127.177. If a pilot serves on *one* helicopter type, he must pass a proficiency check each 6 months. This check may be given anytime during the month before, or the month after, the calendar month in which it is due.

4—(2) The references are FAR 127.103, 127.105, and 127.119.

5—(3) The reference is FAR 127.173.

6—(3) The reference is FAR 127.245.

7—(1) The reference is FAR 127.257.

8—(4) The reference is FAR 127.191.

9—(3) The reference is FAR 127.231. Note that the flight release can be executed orally if the flight originates at a place other than the normal operating base, i.e., at an intermediate heliport.

10—(4) The reference is FAR 127.201.

11—(3) The reference is FAR 127.253. The helicopter must carry enough fuel to fly to the heliport to which it is released, and thereafter fly for at least 20 minutes at normal fuel consumption. The sum of the stage lengths (totaling 70 minutes) and the required reserve (20 minutes) is 90 minutes. The fuel consumed at 10 lbs./min. is 900 lbs. This figure added to the fuel required for warmup, take-off, anticipated traffic and intermediate stop delays totals 1,095 lbs.

12—(2) The reference is *Aviation Weather*, AC 00-6, Chapter 6.

13—(3) The reference is the *Basic Helicopter Handbook*, AC 61-13. As stated in the reference, "... when temperature and pressure are constant, changes in the moisture content of the air will change air density. Water vapor weighs less than dry air. Therefore, as the moisture content of the air increases, air becomes less dense; density altitude is increased with a resultant decrease in helicopter performance."

14—(4) The reference is *Aviation Weather*, AC 00-6, Chapter 11.

15—(3) The reference is *Aviation Weather*, AC 00-6, Chapter 4.

16—(4) Refer to the *Airman's Information Manual*, Part I, Chapter V. The reference states, "... greatest vortex strength occurs when the generating aircraft is HEAVY—CLEAN—SLOW."

17—(1) The reference is *Aviation Weather*, AC 00-6, Chapter 12. Rime icing occurs most frequently in stratiform clouds; clear ice is encountered most frequently in cumuliform clouds.

18—(3) Correct as shown.

19—(1) Referring to the density altitude chart in the Appendix, apply the proper correction (+157 feet) for the altimeter setting (29.75) to obtain the correct pressure altitude. Using the value obtained (2,357 feet) and the temperature given (+25° C.), read the density altitude from the chart. A navigation computer will give the same result (3,900 feet D.A.).

20—(3) Read directly from chart using the example for guidance.

21—(2) Read directly from chart.

22—(2) Read directly from chart using the example for guidance.

23—(3) Read directly from chart.

24—(3) The total moment (4,735,200) divided by the gross weight (18,230 lbs.) gives the c.g. location (259.7 inches aft of the datum). An inspection of Figure 6 in the

Appendix reveals that at the gross weight of 18,230 pounds, the c.g. is well within limits.

25—(4) Draining 300 pounds of fuel results in a new weight of 17,930 pounds and a new moment of 4,674,030 pound/inches. Round off this figure to 4,674,000 and divide by the new weight. The result is a new c.g. located 260.6 inches aft of the datum. Since the old c.g. was located 259.7 inches aft of the datum, the c.g. has moved .9 inch aft.

26—(1) The reference is the *Pilot's Weight and Balance Handbook*, AC 91-23. The basic operating weight, according to the reference, is "... the weight of the aircraft, ready for flight including the crew but without payload and fuel."

27—(2) The reference is the *Basic Helicopter Handbook*, AC 61-13, Chapter 5.

28—(3) The reference is the *Basic Helicopter Handbook*, AC 61-13, Chapter 9.

29—(1) The reference is the *Basic Helicopter Handbook*, AC 61-13, Chapter 9.

30—(1) The reference is the *Basic Helicopter Handbook*, AC 61-13, Chapter 2.

II

Airline Transport Pilot Rotorcraft/Helicopter (IFR) Written Test

1—(1) The reference is FAR 127.177.

2—(3) The reference is FAR 61.47.

3—(1) The reference is FAR 127.225.

4—(4) Refer to the *Airman's Information Manual*, Part I, Chapter 2, and *IFR Exam-O-Gram No. 22*, titled, "VOR Receiver Accuracy Check."

5—(3) Refer to the *Airman's Information Manual*, Part I, Chapter 4.

6—(2) Refer to the *Airman's Information Manual*, Part I, Chapter 4. As stated in the reference, "... the assigned altitude or flight level will be stated in the clearance. . . ." A SID may or may not be assigned.

7—(2) Refer to the *Airman's Information Manual*, Part I, Chapter 4, under "Additional Reports."

8—(2) The reference is FAR 127.219.

9—(2) The reference is FAR 91.116. Under the heading, "Landing Minimums," this regulation states, "... the ceiling minimum shall be added to the field elevation and that value observed as the MDA or DH, as appropriate to the procedure being executed."

10—(1) Refer to the *Airman's Information Manual*, Part I, Chapter 5, under "In-Flight Weather Advisories."

11—(2) The reference is FAR 91.127.

12—(3) Refer to the *Airman's Information Manual*, Part I, Chapter 4.

13—(3) Refer to the *Airman's Information Manual*, Part I, Chapter 4, under "Clearance Items."

14—(4) The reference is FAR 91.117. Under the heading, "Inoperative or unusable components and visual aids," this regulation states, "Compass locator or precision radar may be substituted for the outer or middle marker."

15—(3) Refer to the *Airman's Information Manual*, Part I, Chapter 4, under "Visual Approach." As stated in the reference, "... ATC may . . . and clear it (aircraft) for a 'visual approach' whenever the reported ceiling is at least 500 feet above the minimum vectoring altitude and the visibility is three miles or more." Reported visibility is given in statute miles.

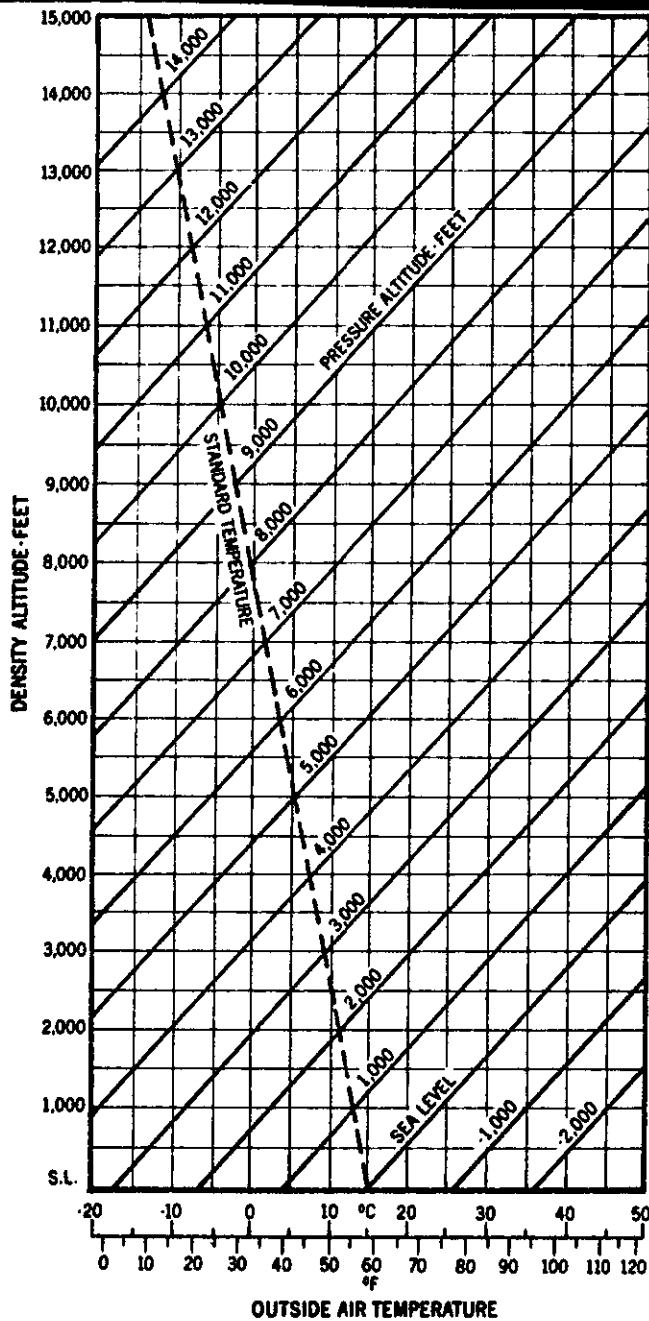
16—(4) Refer to the *Airman's Information Manual*, Part I, Chapter 4, under "Standard Terminal Arrival Routes (STARs)."

17—(1) Refer to the *Airman's Information Manual*, Part I, Chapter 4, under "Radar Monitoring of Instrument Approaches."

18—(1) Refer to *Civil Use of U.S. Government Instrument Approach Procedure Charts*, AC 90-1A. This publication is included in Chapter IX of the *Instrument Flying Handbook*, AC 61-27B. On page 174, the reference states, "... in the VOR/DME procedure, when either the VOR or DME is inoperative, the procedure is not authorized."

19—(2) Refer to the *Airman's Information Manual*, Part I, Chapter 2, under "Visual Approach Slope Indicator (VASI)."

20—(1) Refer to the *Airman's Information Manual*, Part I, Chapter 4, under "Light Signals."



**ALTIMETER
SETTING
IN. HG.**

**ALTITUDE ADDITION
FOR OBTAINING
PRESSURE ALTITUDE**

| | |
|-------|-------|
| 28.0 | 1,825 |
| 28.1 | 1,725 |
| 28.2 | 1,630 |
| 28.3 | 1,535 |
| 28.4 | 1,435 |
| 28.5 | 1,340 |
| 28.6 | 1,245 |
| 28.7 | 1,150 |
| 28.8 | 1,050 |
| 28.9 | 955 |
| 29.0 | 865 |
| 29.1 | 770 |
| 29.2 | 675 |
| 29.3 | 580 |
| 29.4 | 485 |
| 29.5 | 390 |
| 29.6 | 300 |
| 29.7 | 205 |
| 29.8 | 110 |
| 29.9 | 20 |
| 29.92 | 0 |
| 30.0 | -75 |
| 30.1 | -165 |
| 30.2 | -255 |
| 30.3 | -350 |
| 30.4 | -440 |
| 30.5 | -530 |
| 30.6 | -620 |
| 30.7 | -710 |
| 30.8 | -805 |
| 30.9 | -895 |
| 31.0 | -985 |

FIGURE 1. Density altitude chart.

USE OF HOVER PERFORMANCE CHART

Problem: Determine the power required to hover out of ground effect at 2,500 feet pressure altitude, 20° C. OAT, 17,500 pounds gross weight, a 3-knot headwind, and 100% (203 r.p.m.) rotor speed.

Solution:

1. Enter the chart at a pressure altitude of 2,500 feet, (A).
2. From (A), move horizontally to intersect the basic hover curves at a gross weight of 17,500 pounds, (B).
3. From (B), move vertically down to an altitude of 2,500 feet, (C).
4. From (C), move parallel to the temperature influence lines at an OAT of 20° C., (D).
5. From (D), move vertically down to a headwind base line at zero knots, (E).
6. From (E), move parallel to the headwind influence lines to a headwind of 3 knots, (F).
7. From (F), move vertically down to read shaft horsepower at (G).

For the above conditions, 2010 s. hp. is required to hover, as read at (G).

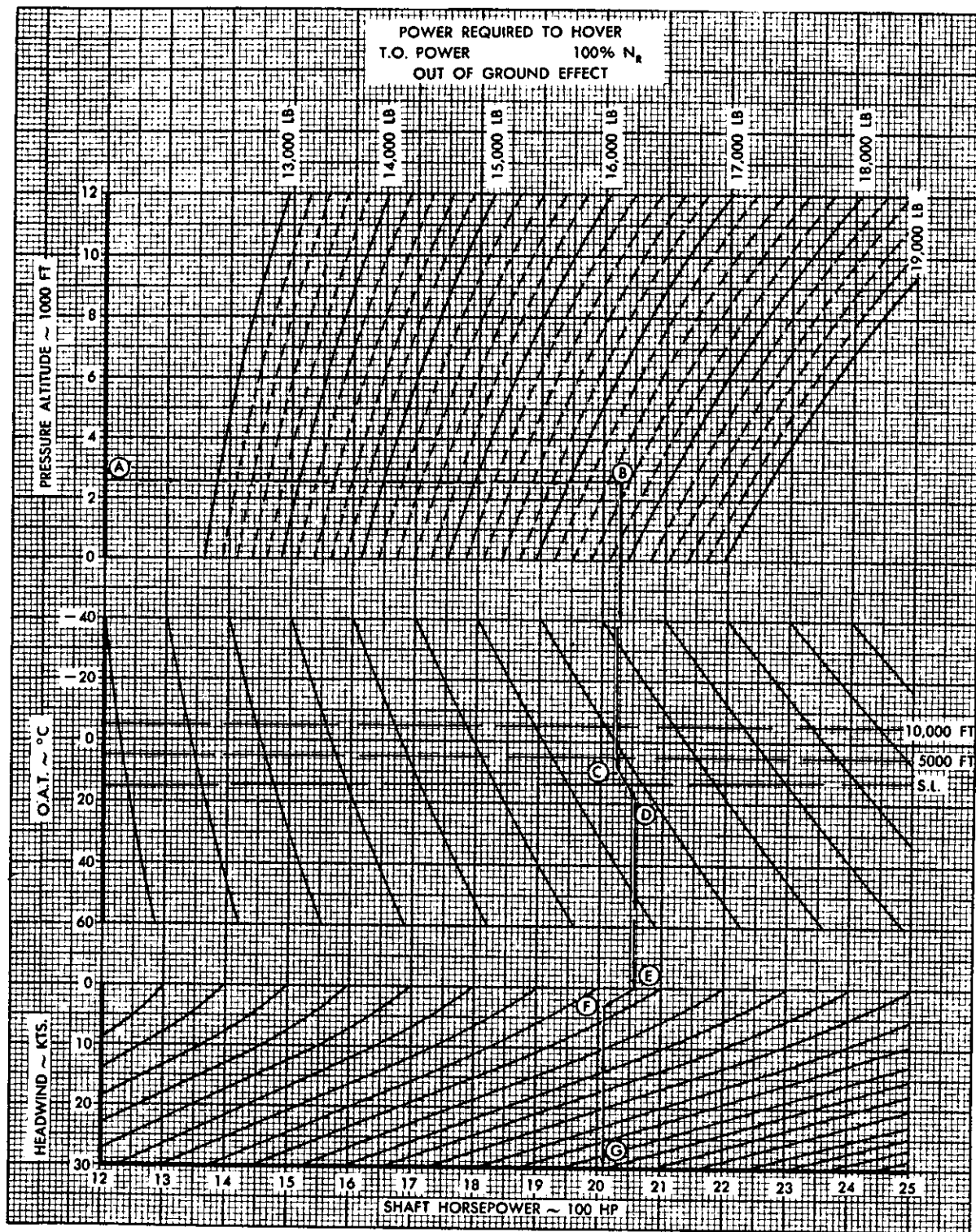


FIGURE 2. Power required to hover—out of ground effect.

**USE OF LANDING DISTANCE CHART FOR A TYPICAL LANDING FOR
CATEGORY A OR B**

Problem: Determine the landing distance for an aircraft weighing 17,500 lbs. landing at 5,000 feet pressure altitude with the temperature at 20° C. The aircraft has an approach speed of 25 knots IAS, a touchdown speed of 15 knots and an approach rate-of-descent of 1,200 f.p.m.

Solution: Enter the curve at the pressure altitude of 5,000 feet and move horizontally to the intersect with the temperature of 20° C. From this point proceed vertically down to the weight baseline of 19,000 lbs. From this baseline move parallel to the gross weight influence lines to the gross weight of 17,500 lbs. From this point move vertically down to determine the total landing distance. The total landing distance for the above stated conditions is 358 feet.

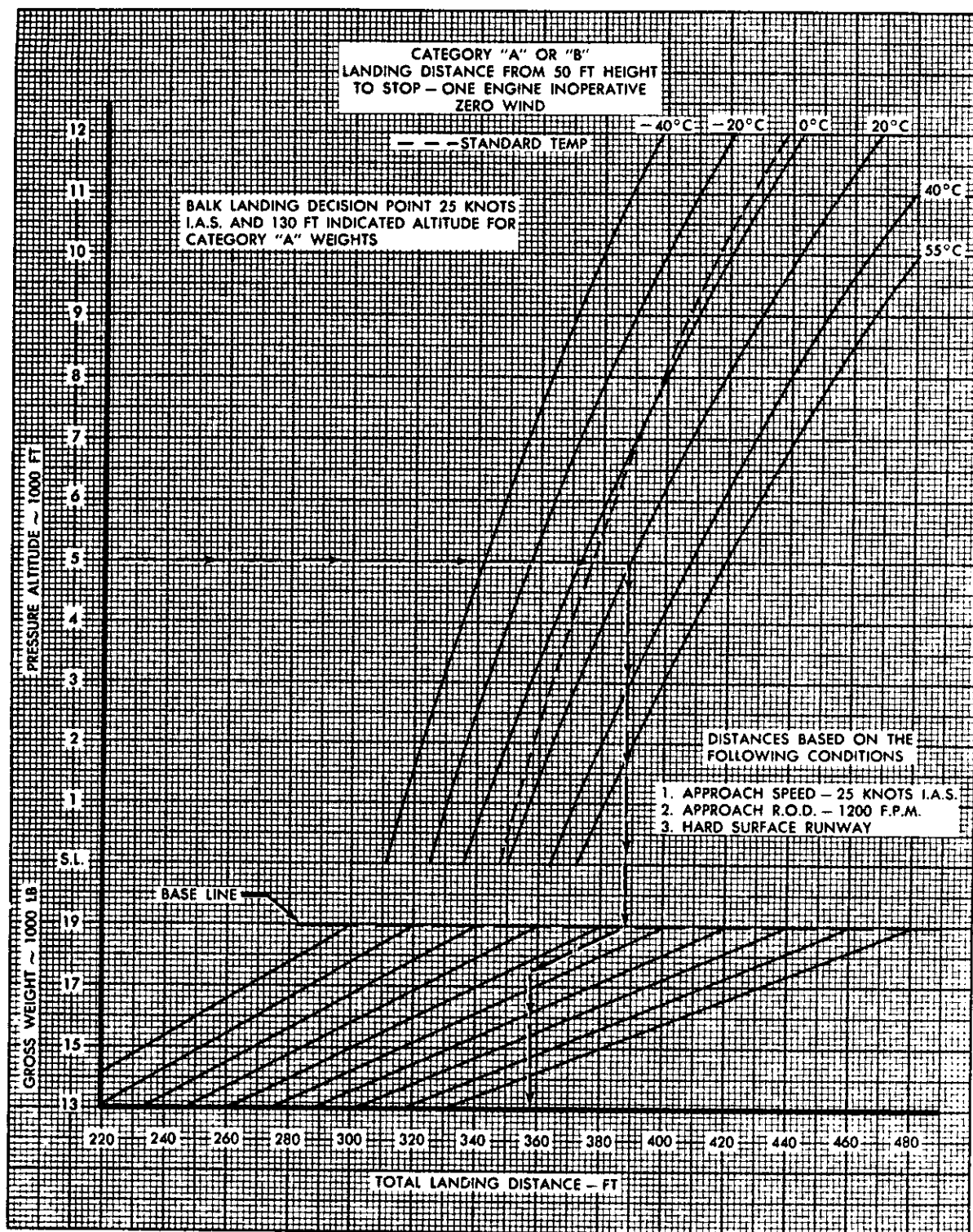


FIGURE 3. Landing distance from 50-ft. height.

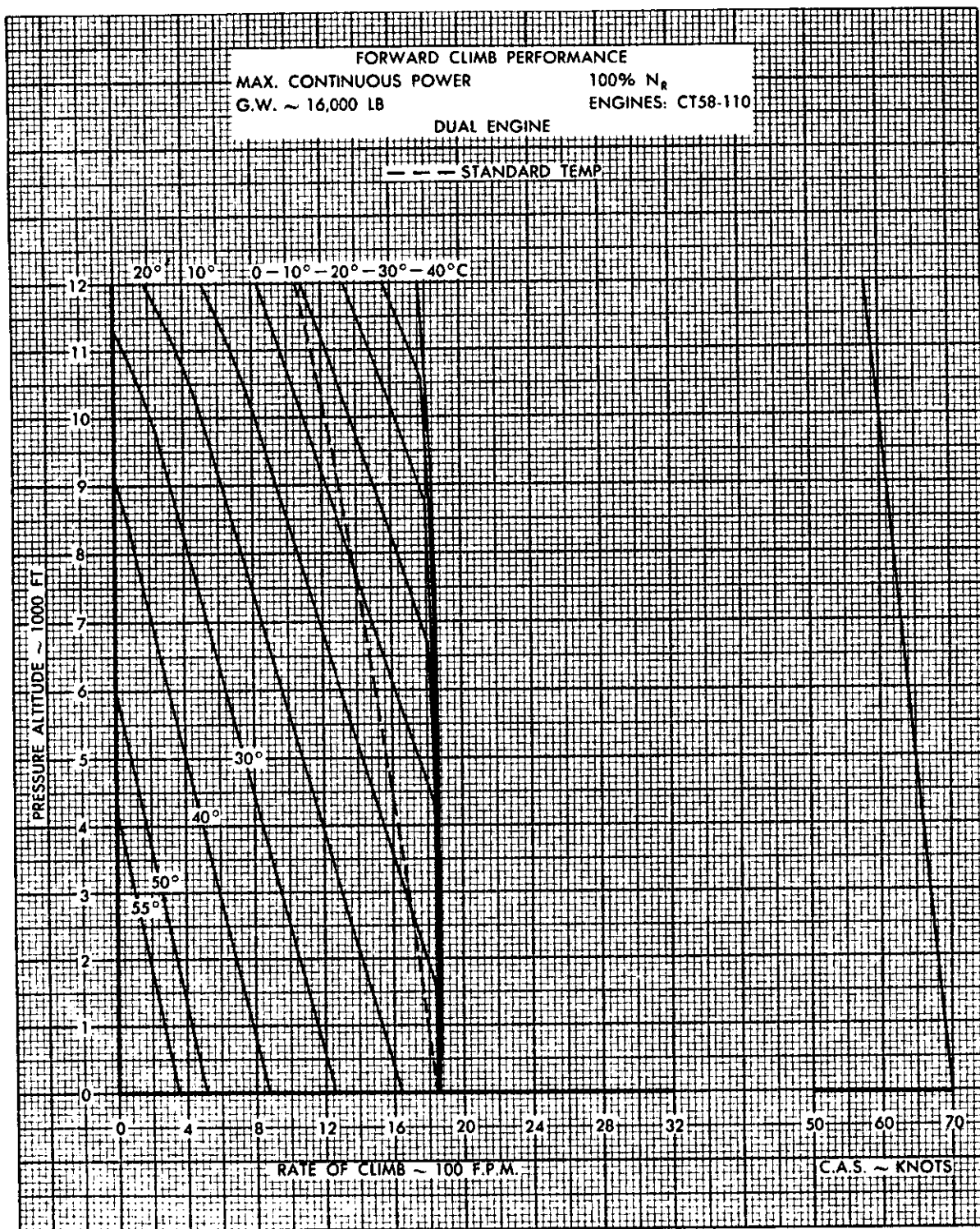


FIGURE 4. Forward climb performance.

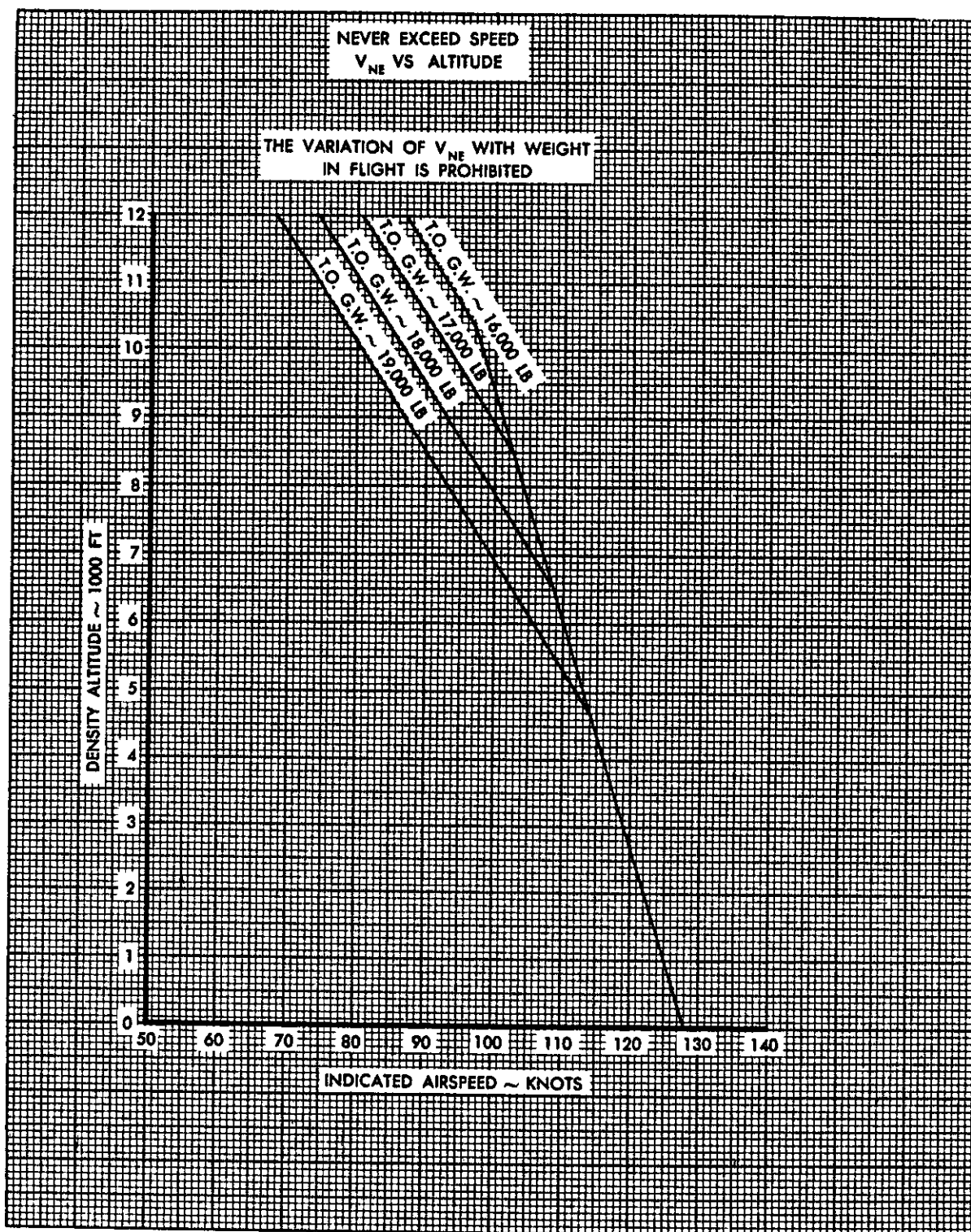


FIGURE 5. Never exceed speed (V_{NE}) chart.

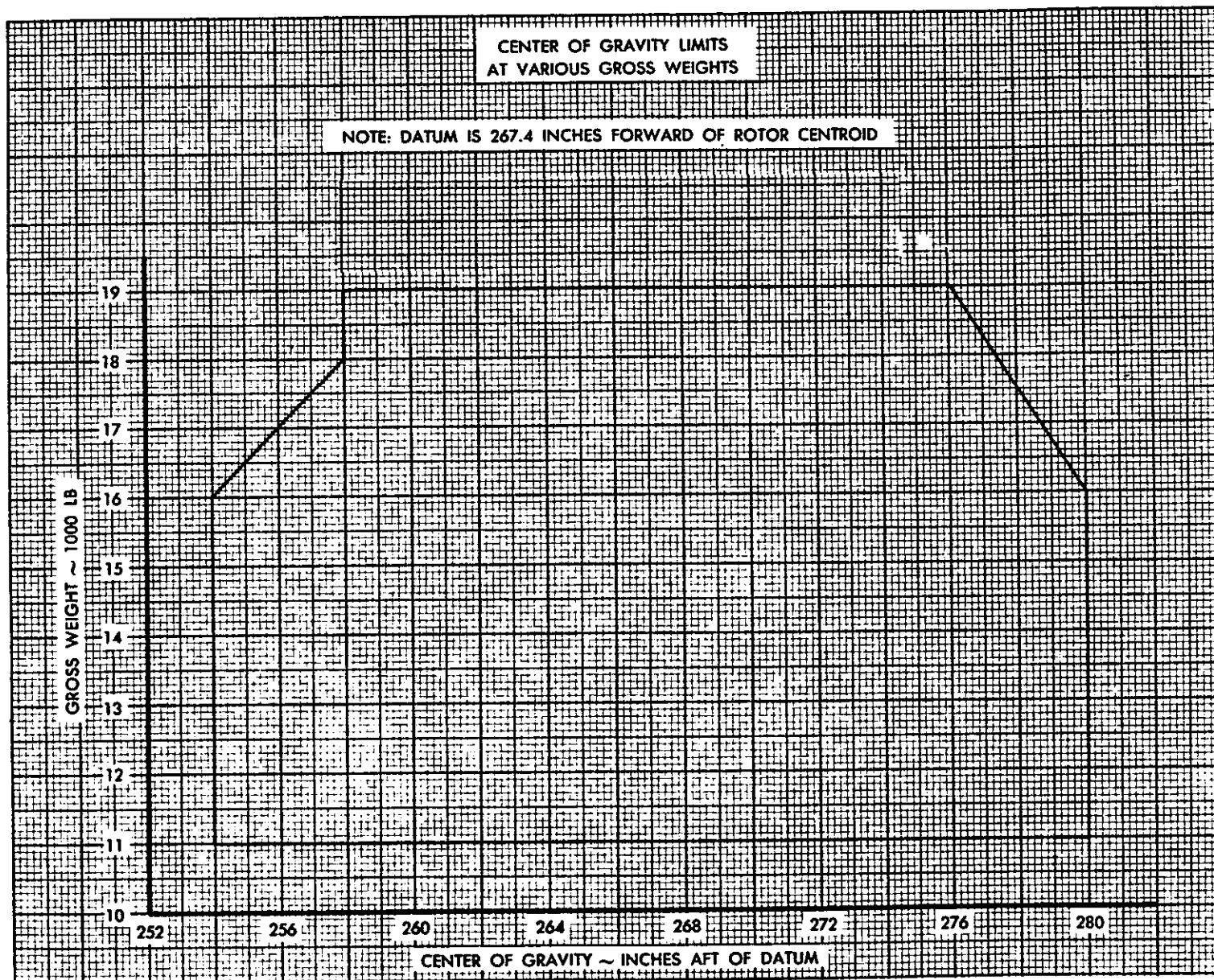


FIGURE 6. Center of gravity limits.

AIRLINE TRANSPORT PILOT (HELICOPTER) Written Test Guide



Revised 1972

**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
Flight Standards Service**

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SAMPLE TESTS

The sample tests which follow are provided to familiarize the applicant with the type of test items contained in the official FAA written tests. It is important to remember, however, that these test items do not direct attention to all of the topics on which you will be tested in the official tests. For this reason, you should concentrate on the test outlines presented in another section of this guide. A knowledge of all of the topics presented in the outline—not just the ability to answer these few sample test items—should be your goal as you prepare for the written test in either of the two rating areas.

Answers to the sample test items are presented in the section of the guide following the sample tests. Also presented are analyses, or explanations, of each test item.

NOTE.—The reader should be aware that the sample test items and certain other material are based on regulations and procedures in effect at the time of final editing of this guide. Similar test items in the official FAA written tests should always be answered in terms of current regulations and procedures.

Airline Transport Pilot Rotorcraft/Helicopter (VFR) Written Test

1. As a flight crewmember in a scheduled helicopter air carrier operation, your flight time limitations are based on which of the following?

1—Total flight time assigned by the air carrier.

2—Total flight time in all commercial flying.

3—Total flight time as pilot-in-command.

4—Total flight time for all operations, commercial and private.

2. You are serving as a pilot in a scheduled helicopter air carrier operation. Your recent experience (within the preceding 90 days), must include at least

1—5 takeoffs and 5 landings to a full stop in any helicopter.

2—3 takeoffs and 3 landings in any helicopter.

3—6 hours of flight time in a helicopter of the type in which you serve.

4—3 takeoffs and 3 landings in a helicopter of the type in which you serve.

3. Prior to release of a VFR flight under FAR 127, meteorological conditions must permit

1—sufficient visual ground reference for proper control of the helicopter.

2—unrestricted flight on top of an overcast condition.

3—sufficient forward visibility for proper control of the helicopter without the use of flight instruments.

4—sufficient horizon reference for proper control of the helicopter.

4. To serve as pilot, second-in-command of a scheduled air carrier helicopter flight, you must hold

1—an airline transport pilot certificate.

2—a commercial pilot certificate only.

3—at least a commercial pilot certificate and a helicopter rating.

4—a commercial pilot certificate with an instrument rating.

5. The air carrier shall provide a cockpit check procedure for each type of helicopter. This checklist

1—should be used only in emergency situations.

2—shall be available in the cockpit and used for all operations.

3—is to be used only during initial pilot training.

4—must be readily usable in the cockpit of each helicopter.

6. You are qualified as pilot-in-command in two different type helicopters (type A and type B) operated by an air carrier. The effective date of your last proficiency check, taken in type B, is November 15. To maintain your qualification as pilot-in-command in both types, you

must complete your next proficiency check not later than the following

- 1—April 30 in type B.
- 2—June 30 in type A.
- 3—December 31 in type A.
- 4—May 31 in either type helicopter.

7. Your last flight as pilot-in-command on one of the routes over which your company operates was July 20. To maintain route qualifications you must make a flight over the route no later than

- 1—October 18.
- 2—September 30.
- 3—October 31.
- 4—October 15.

8. FAR 127 specifies a minimum number of approved hand fire extinguishers for use in crew, passenger, and cargo compartments. The total number required for a helicopter of 10 passenger capacity is

- 1—one.
- 2—two.
- 3—three.
- 4—four.

9. Procedures for the control of weight and balance for a particular helicopter used in a scheduled air carrier operation are found in

- 1—the operating certificate.
- 2—FAR 29.
- 3—the operations specifications.
- 4—FAR 127.

10. Preflight planning associated with a scheduled air carrier helicopter flight is the responsibility of the

- 1—operations office.
- 2—dispatcher.
- 3—dispatcher and pilot-in-command.
- 4—pilot-in-command.

11. Which combination of meteorological conditions has the most adverse effect on helicopter performance?

- 1—Low humidity and low outside air temperature.
- 2—High humidity and high outside air temperature.
- 3—High humidity and low outside air temperature.
- 4—Low humidity and high outside air temperature.

12. Which of the following factors is most significant in the formation of radiation or ground fog?

- 1—Cooling from below.
- 2—Strong, gusty winds.
- 3—Overcast sky condition.
- 4—Heating from below.

13. The movement of air in a high pressure system is described in which of the following terms?

- 1—Diverging and subsiding.
- 2—Converging and descending.
- 3—Diverging and ascending.
- 4—Converging and ascending.

14. Select the condition which is associated with the formation of clear ice.

- 1—Small size water droplets.
- 2—Extremely low temperature.
- 3—Cumuliform clouds.
- 4—Stratiform clouds.

15. In which of the following weather reports or forecasts is wind reported in terms of magnetic direction?

- 1—Terminal forecasts.
- 2—Winds aloft forecasts.
- 3—Hourly sequence reports.
- 4—Tower reported wind.

16. Which of the conditions listed below are associated with unstable air?

- 1—Turbulence and showery precipitation.
- 2—Poor visibility.
- 3—Steady precipitation.
- 4—Stratiform clouds and fog.

17. A portion of an Area Forecast pertaining to southern New York and adjacent coastal waters is reproduced below:

. . . C5-10 \oplus 1-2S-F. PCPN MXD SNW
RAIN SLEET CSTL SECS. IPVG BTN
08E-10E TO C15 \oplus 2S-F . . . CLD TOPS
300 LWRG AFT 10E to 100. SFC WNDS
CSTL SECS 0625G40 . . .

Which of the following statements is correct?

- 1—Between 08E and 10E, cloud bases are expected to be 1,500 feet, MSL.
- 2—Surface winds along coastal sections are forecast to be 060°/25 knots, gusting to 40 knots.
- 3—Cloud tops will lower after 10E to 1,000 feet.
- 4—Visibility is reduced by heavy snow and light fog.

AIRLINE TRANSPORT PILOT (HELICOPTER) Written Test Guide



Revised 1968

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