



General Mechanic

2023 Test Guide

Study and prepare for your aviation mechanic
FAA Knowledge Exam

Includes 5 online
Practice Tests



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AVIATION SUPPLIES & ACADEMICS, INC.
NEWCASTLE, WASHINGTON

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General Mechanic Test Guide
2023 Edition

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Updates and Practice Tests

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The FAA modifies tests as needed throughout the year. ASA keeps abreast of changes to the tests and posts free Test Updates on the ASA website. Before taking your test, be certain you have the most current information by visiting the ASA Test Updates webpage: asa2fly.com/testupdate. Additionally, sign up for free email notifications, which are sent when new Test Updates are available.

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Introduction

Welcome to the Aviation Supplies & Academics, Inc., (ASA) Test Guide Series, based on the original Fast-Track series written by Dale Crane. This series has been helping aviation mechanics prepare for FAA Knowledge Exams with great success for more than 60 years. We are confident that with the proper use of this book you will score very well on your FAA Knowledge Exam. Additionally, the ASA Test Guides include typical oral test questions and practical projects to help you prepare for the final step in the Aviation Mechanic certification process.

Begin your studies with an instructor-led or home-study ground school course, which will involve reading a comprehensive textbook for aviation maintenance technicians (AMTs). Once complete, visit the Reader Resources for this Test Guide (asa2fly.com/AMG) and become familiar with the FAA guidance material available for this certification exam. Then use this Test Guide to prepare for your exam: Read the question, select your choice for the correct answer, and then read the explanation. Use the references that accompany the correct answer at the bottom of each page to identify additional resources for further study. Upon completion of your studies, take practice tests at prepware.com (see inside the front cover for your activation code).

Prior to taking an FAA Airman Knowledge Test, all applicants must establish an FAA Tracking Number (FTN) by creating a profile in the Integrated Airman Certification and Rating Application (IACRA) system at iacra.faa.gov. Then visit faa.psiexams.com to register for your exam and take FAA-created practice tests to become familiar with the computer testing platform.

The FAA exams are “closed tests” which means the exact database of questions is not available to the public. The question and answer choices in this book are based on our extensive history and experience with the FAA testing process as well as the FAA’s publicly available information. You might see similarly worded questions on your official FAA exam and answer stems may be rearranged from the A, B, C order you see in this book. Therefore, be sure to fully understand the intent of each question and corresponding answer while studying, rather than memorizing the letter associated with the correct response. Studying and understanding the information in this book and the associated references will give you the tools to answer question variations with confidence.

If your study leads you to question an answer choice, we recommend you seek the assistance of a local instructor. We welcome your questions, recommendations or concerns—send them to:

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The FAA appreciates testing experience feedback. Contact them at:

Federal Aviation Administration

AFS-630, Airman Testing Standards Branch
PO Box 25082
Oklahoma City, OK 73125
Email: afs630comments@faa.gov

Instructions

The general qualifications for an Aviation Mechanic certificate require you to have a combination of experience, knowledge, and skill. If you are pursuing an Aviation Mechanic certificate with Airframe and Powerplant ratings, you should review the appropriate sections of 14 CFR Part 65 for detailed information pertaining to eligibility requirements. Further information may be obtained from faa.gov/mechanics.

The table below lists the number of questions, allotted testing time, and required passing score for each aviation mechanic knowledge exam, as well as the Test Code you'll use to register for your test.

Test Code	Test Name	Number of Questions	Min. Age	Allotted Time (hrs)	Passing Score
AMG	Aviation Mechanic—General	60	N/A	2.0	70
AMA	Aviation Mechanic—Airframe	100	N/A	2.0	70
AMP	Aviation Mechanic—Powerplant	100	N/A	2.0	70

Description of the Knowledge Test

All test questions are objective multiple-choice and can be answered by the selection of a single response. Each test question is independent of other questions; therefore, a correct response to one does not depend upon, or influence, the correct response to another. Considerable effort is expended to write each question in a clear, precise manner. Make sure you read the instructions given with the test, as well as the statements in each test item. When taking a test, keep the following points in mind:

1. Answer each question in accordance with the latest regulations and guidance publications.
2. Read each question carefully before looking at the possible answers. You should clearly understand the problem before attempting to solve it.
3. After formulating an answer, determine which choice corresponds with that answer. The answer chosen should completely resolve the problem.
4. From the answers given, it may appear that there is more than one possible answer; however, there is only one answer that is correct and complete. The other answers are either incomplete, erroneous, or represent common misconceptions.
5. If a certain question is difficult for you, mark it for review and proceed to the next question. After you answer the less difficult questions, return to those you marked for review and answer them. The review marking procedure will be explained to you prior to starting the test. Although the computer should alert you to unanswered questions, make sure every question has an answer recorded. This procedure will enable you to use the available time to maximum advantage.
6. When solving a calculation problem, select the answer closest to your solution. The problem has been checked several times by various individuals; therefore, if you have solved it correctly, your answer will be closer to the correct answer than any of the other choices.

Your test will be graded immediately upon completion and your score will display on the computer screen.

Knowledge Test Eligibility Requirements

Before taking the certification knowledge and practical tests, you must meet the eligibility requirements for authorization. Applicants may present one or more of the following acceptable forms of authorization:

- Original FAA Form 8610-2, Airman Certificate and/or Rating Application. The proctor will verify that applicable blocks are marked (in upper left corner of form). Those not applicable will have a line drawn through them (identifying Airframe and/or Powerplant).
- Certificate of graduation or completion from an FAA-certificated Aviation Maintenance Technician School (AMTS).
- Military Certificate of Eligibility.

Learn more about the FAA's test authorization requirement by reviewing 14 CFR Parts 65 and 141 and the FAA Airman Knowledge Testing Authorization Requirements matrix posted in the reader resources at asa2fly.com/AMG.

Taking the Knowledge Test

The FAA testing provider authorizes hundreds of test center locations that offer a full range of airman knowledge tests. For information on authorized testing centers and to register for the knowledge test, visit faa.psiexams.com.

When you contact a knowledge testing center, be prepared to select a test date and make a payment. You may register for test(s) several weeks in advance online or with a telephone call, and you may cancel in accordance with the testing center's cancellation policy. Regardless of your registration method, you will need an FAA Tracking Number (FTN). This FTN will follow you throughout your aviation career. You will obtain your FTN by creating a profile in the Integrated Airman Certificate and Rating Application (IACRA) system at iacra.faa.gov. This FTN will be printed on your Airman Knowledge Test Report (AKTR).

For more information, contact:

PSI Services LLC

844-704-1487 or examschedule@psionline.com

faa.psiexams.com

On the day of the Airman Knowledge Test the applicant must provide the following information to be collected in order to complete the registration process at the testing center prior to the test proctor administering the Airman Knowledge Test: Name, FAA Tracking Number (FTN), physical address, date of birth, email address, photo identification, phone number, test authorization (credentials of the individual such as an instructor endorsement), and previous number of test attempts. The faa.psiexams.com website, your instructor, or local FAA office can assist you with what documentation to take to the testing facility. Testing center personnel will not begin the test until your identification is verified. Acceptable forms of authorization are:

- FAA Form 8610-2.
- A graduation certificate or certificate of completion from an affiliated testing center.
- A failed, passing, or expired AKTR.

Upon completion of your test, you will receive your AKTR which will state your score. Visit faa.psiexams.com to request a duplicate or replacement Airman Test Report due to loss or destruction. The AKTR must be presented to the examiner prior to taking the Oral and Practical Exam. During the oral portion of the test, the examiner is required to evaluate the noted areas of deficiency.

Retesting Procedure

Retests do not require a 30-day waiting period if the applicant presents a signed statement from an airman holding the certificate and rating sought by the applicant. This statement must certify that the airman has given the applicant additional instruction in each of the subjects failed, and that the airman considers the applicant ready for retesting. A 30-day waiting period is required for retesting if the applicant presents a failed airman knowledge test report, but no authorized instructor endorsement.

Applicants taking retests *after failure* are required to submit the applicable test report indicating failure to the testing center prior to retesting. The original failed test report shall be retained by the proctor and attached to the applicable sign-in/out log. The latest test taken will reflect the official score.

Applicants retesting *in an attempt to achieve a higher passing score* may retake the same test for a better grade after 30 days. The latest test taken will reflect the official score. Applicants are required to submit the *original* applicable test report indicating previous passing score to the testing center prior to testing. Testing center personnel must collect and destroy this report prior to issuing the new test report.

Use of Test Aids and Materials

Airman knowledge tests require applicants to analyze the relationship between variables needed to solve aviation problems, in addition to testing for accuracy of a mathematical calculation. The intent is that all applicants are tested on concepts rather than rote calculation ability. It is permissible to use certain calculating devices when taking airman knowledge tests, provided they are used within the following guidelines. The term “calculating devices” is interchangeable with such items as calculators, computers, or any similar devices designed for aviation-related activities.

1. Guidelines for use of test aids and materials. The applicant may use test aids and materials within the guidelines listed below, if actual test questions or answers are not revealed.
 - a. Applicants may use test aids, such as a calculating device that is directly related to the test. In addition, applicants may use any test materials provided with the test.
 - b. The test proctor may provide a calculating device to applicants and deny them use of their personal calculating device if the applicant’s device does not have a screen that indicates all memory has been erased. The test proctor must be able to determine the calculating device’s erasure capability. The use of calculating devices incorporating permanent or continuous type memory circuits without erasure capability is prohibited.
 - c. The use of magnetic cards, magnetic tapes, modules, computer chips, or any other device upon which prewritten programs or information related to the test can be stored and retrieved is prohibited. Printouts of data will be surrendered at the completion of the test if the calculating device used incorporates this design feature.
 - d. The use of any booklet or manual containing instructions related to the use of the applicant’s calculating device is not permitted.
 - e. Dictionaries are not allowed in the testing area.
 - f. The test proctor makes the final determination relating to test materials and personal possessions that the applicant may take into the testing area.
2. Guidelines for applicant’s with learning or reading disabilities. An applicant with a learning or reading disability may request approval from the local Flight Standards Office to take an airman knowledge test using one of the following options listed in preferential order:
 - (1) The applicant may request up to 1½ times the standard time allotted to complete the knowledge test.
 - (2) The applicant may use a self-contained electronic device which pronounces and displays typed-in words (e.g., the Franklin Speaking Wordmaster®) to facilitate the testing process. The applicant must provide his or her own device, with approval of the device to be determined by the administrator. Note: The device should consist of an electronic thesaurus that audibly pronounces typed-in words and presents them on a display screen. The device should also have a built-in headphone jack for private listening in order to avoid disturbing others during testing.

Cheating or Other Unauthorized Conduct

Computer testing centers are required to follow strict security procedures to avoid test compromise. These procedures are established by the FAA and are covered in FAA Order 8080.6, Conduct of Airman Knowledge Tests. The FAA has directed testing centers to terminate a test at any time a test proctor suspects a cheating incident has occurred. An FAA investigation will then be conducted. If the investigation determines that cheating or other unauthorized conduct has occurred, then any airman certificate or rating that you hold may be revoked, and you will be prohibited for 1 year from applying for or taking any test for a certificate or rating under 14 CFR Part 65.

Validity of Airman Test Reports

Airman Knowledge Test Reports are valid for the 24-calendar month period preceding the month you complete the practical test. If the Airman Test Report expires before completion of the practical test, you must retake the knowledge test.

Learning Statement Codes

The expression *learning statement* refers to measurable statements about the knowledge a student should be able to demonstrate following a certain segment of training.

Your AKTR will list the Learning Statement Codes (LSCs) for questions you have answered incorrectly. Match the codes given on your test report to the ones listed below. Your instructor can provide instruction on each of the areas of deficiency listed on your AKTR to help you prepare for your Oral and Practical Exam. The AKTR must be presented to the examiner conducting your Oral and Practical Exam. During the oral portion of the test, the examiner will evaluate the noted areas of deficiency.

Learning Statement Codes are prefixed with a letter-identifier (for example, AMG031). For the purposes of reference within this ASA Test Guide, the letter prefix is omitted; therefore throughout this book, LSCs are referred to by their number-identifiers only, in parentheses.

LSC	Subject area
AMG001	Ability to draw/sketch repairs/alterations
AMG002	Calculate center of gravity
AMG003	Calculate weight and balance
AMG004	Determine correct data
AMG005	Determine regulatory requirement
AMG006	Interpret drag ratio from charts
AMG007	Recall aerodynamic fundamentals
AMG008	Recall air density
AMG009	Recall aircraft cleaning—materials/techniques
AMG010	Recall aircraft component markings
AMG011	Recall aircraft control cables—install/inspect/repair/service
AMG012	Recall aircraft corrosion—principles/control/prevention
AMG013	Recall aircraft drawings—detail/assembly
AMG014	Recall aircraft drawings/blueprints—lines/symbols/sketching
AMG015	Recall aircraft electrical system—install/inspect/repair/service
AMG016	Recall aircraft engines—performance charts
AMG017	Recall aircraft hardware—bolts/nuts/fasteners/fittings/valves
AMG018	Recall aircraft instruments—tachometer indications/dual tachometers
AMG019	Recall aircraft metals—inspect/test/repair/identify/heat treat
AMG020	Recall aircraft metals—types/tools/fasteners
AMG021	Recall aircraft publications—aircraft listings
AMG022	Recall aircraft records—required/destroyed
AMG023	Recall aircraft repair—major
AMG024	Recall airframe—inspections
AMG025	Recall airworthiness certificates—validity/requirements
AMG026	Recall ATA codes
AMG027	Recall basic physics—matter/energy/gas
AMG028	Recall data—approved
AMG029	Recall dissymmetry
AMG030	Recall effects of frost/snow on airfoils
AMG031	Recall electrical system—components/operating principles/characteristics/symbols
AMG032	Recall environmental factors affecting maintenance performance

LSC	Subject area
AMG033	Recall external loading
AMG034	Recall flight characteristics—autorotation/compressibility
AMG035	Recall flight operations—air taxi
AMG036	Recall fluid lines—install/inspect/repair/service
AMG037	Recall fluid lines—material/coding
AMG038	Recall forces acting on aircraft—angle of incidence
AMG039	Recall forces acting on aircraft—yaw/adverse yaw
AMG040	Recall fuel—types/characteristics/contamination/fueling/defueling/dumping
AMG041	Recall fundamental inspection principles—airframe/engine
AMG042	Recall fundamental material properties
AMG043	Recall generator system—components/operating principles/characteristics
AMG044	Recall geometry
AMG045	Recall ground operations—start/move/service/secure aircraft
AMG046	Recall helicopter engine control system
AMG047	Recall helicopter flight controls
AMG048	Recall information on an Airworthiness Directive
AMG049	Recall instrument panel mounting
AMG050	Recall maintenance error management
AMG051	Recall maintenance publications—service/parts/repair
AMG052	Recall maintenance resource management
AMG053	Recall mathematics—percentages/decimals/fractions/ratio/general
AMG054	Recall penalties—falsification/cheating
AMG055	Recall physics—work forces
AMG056	Recall pitch control—collective/cyclic
AMG057	Recall precision measuring tools—meters/gauges/scales/calipers
AMG058	Recall reciprocating engine—components/operating principles/characteristics
AMG059	Recall regulations—aircraft inspection/records/expiration
AMG060	Recall regulations—aircraft operator certificate
AMG061	Recall regulations—aircraft registration/marks
AMG062	Recall regulations—Airworthiness Directives
AMG063	Recall regulations—airworthiness requirements/responsibilities
AMG064	Recall regulations—certificate of maintenance review requirements
AMG065	Recall regulations—Certificate of Release
AMG066	Recall regulations—certification of aircraft and components
AMG067	Recall regulations—change of address
AMG068	Recall regulations—check periods
AMG069	Recall regulations—determine mass and balance
AMG070	Recall regulations—display/inspection of licenses and certificates
AMG071	Recall regulations—emergency equipment
AMG072	Recall regulations—flight/operating manual marking/placard
AMG073	Recall regulations—housing and facility requirements
AMG074	Recall regulations—instrument/equipment requirements
AMG075	Recall regulations—maintenance control/procedure manual

LSC	Subject area
AMG076	Recall regulations—maintenance reports/records/entries
AMG077	Recall regulations—maintenance requirements
AMG078	Recall regulations—minimum equipment list
AMG079	Recall regulations—minor/major repairs
AMG080	Recall regulations—persons authorized for return to service
AMG081	Recall regulations—persons authorized to perform maintenance
AMG082	Recall regulations—privileges/limitations of maintenance certificates/licenses
AMG083	Recall regulations—privileges of approved maintenance organizations
AMG084	Recall regulations—reapplication after revocation/suspension
AMG085	Recall regulations—reporting failures/malfunctions/defects
AMG086	Recall regulations—return to service
AMG087	Recall regulations—special airworthiness certificates/requirements
AMG088	Recall regulations—special flight permit
AMG089	Recall regulations—weighing an aircraft
AMG090	Recall repair fundamentals—turnbuckles
AMG091	Recall rotor system—components/operating principles/characteristics
AMG092	Recall rotorcraft vibration—characteristics/sources
AMG093	Recall starter/ignition system—components/operating principles/characteristics
AMG094	Recall starter system—starting procedures
AMG095	Recall turbine engines—components/operational characteristics/associated instruments
AMG096	Recall turbine engines—install/inspect/repair/service/hazards
AMG097	Recall type certificate data sheet (TCDS)/supplemental type certificate (STC)
AMG098	Recall welding types/techniques/equipment
AMG099	Recall work/power/force/motion
AMG100	Recall mathematics—extract roots/radical/scientific notation
AMG101	Recall positive/negative algebraic operations—addition/subtraction/multiplication/division
AMG102	Recall aircraft electrical circuit diagrams—read/interpret/troubleshoot
AMG103	Define maintenance resource management
AMG104	Recall human reliability—in maintenance errors
AMG105	Recall environmental factors leading to maintenance errors
AMG106	Recall fatigue in maintenance errors causes/interventions
AMG107	Recall error management
AMG108	Recall maintenance resource management
AMG109	Recall error management in shift turnover
AMG110	Recall error capture/duplicate inspection
AMG111	Recall ergonomic interventions to maintenance errors
AMG112	Recall interventions to prevent cross-connection maintenance errors
AMG113	Recall interventions to prevent shift/task turnover errors
AMG114	Recall environmental factors affecting maintenance performance
AMG115	Recall environmental factors affecting maintenance performance—lighting/temperature/noise/air quality
AMG116	Recall error intervention—interruptions/access

Knowledge Exam References

The FAA references the following documents to write the FAA Knowledge Exam questions. You should be familiar with all of these as part of your classroom studies, which you should complete before starting test preparation:

FAA-H-8083-30	<i>Aviation Maintenance Technician Handbook—General</i> (FAA)
FAA-H-8083-31, Vol. 1 & 2	<i>Aviation Maintenance Technician Handbook—Airframe</i> (FAA)
FAA-H-8083-32, Vol. 1 & 2	<i>Aviation Maintenance Technician Handbook—Powerplant</i> (FAA)
FAA-H-8083-3	<i>Airplane Flying Handbook</i> (FAA)
FAA-G-8082-11	<i>Inspection Authorization Test Guide</i> (FAA)
14 CFR Parts 1, 3, 21, 23, 39, 43, 45, 47, 65, 91, 147	
Advisory Circulars (AC) 21-12, 23-21, 23.1309-1, 43.9-1, 43.13-1	

Additional resources helpful for AMT studies:

AMT-G	<i>Aviation Mechanic Series: General</i> (ASA)
AMT-STRUC	<i>Aviation Mechanic Series: Airframe Structures</i> (ASA)
AMT-SYS	<i>Aviation Mechanic Series: Airframe Systems</i> (ASA)
AMT-P	<i>Aviation Mechanic Series: Powerplant</i> (ASA)
DAT	<i>Dictionary of Aeronautical Terms</i> (ASA)
AIM	<i>Aeronautical Information Manual</i> (FAA)

Acronyms

For reference, acronyms appearing in this book are defined below.

AC	Advisory Circular	RTS	right tank switch
AC	Air Corp (fitting, specification standard)	SAE	SAE International, previously the Society of Automotive Engineers
AC	alternating current	SHEL	software, hardware, environment, liveware (human factors model)
AD	Airworthiness Directive	STC	Supplemental Type Certificate
AD	ashless dispersant (oil)	TCC	thrust control computer
amp	ampere	TCDS	Type Certificate Data Sheet
AN	Army-Navy (specification standard)	TCO	thermal cutoff
ATA	Air Transport Association (specification standard)	TEL	tetraethyl lead
BHP	brake horsepower	TEMAC	trailing edge of mean aerodynamic chord
BMEP	brake mean effective pressure	TIT	turbine inlet temperature
CG	center of gravity	TSO	Technical Standard Order
CO	carbon monoxide	V	volt
CO ₂	carbon dioxide	W	watt
DC	direct current		
EGT	exhaust gas temperature		
EMF	electromotive force		
FCF	fuel crossfeed		
hp	horsepower		
IA	inspection authorization		
ITT	interstage turbine temperature		
KV	kilovolt (1,000 volts)		
L/D	lift over drag (ratio)		
LEMAC	leading edge of mean aerodynamic chord		
LTS	left tank switch		
MEDA	Maintenance Error Decision Aid		
MEK	methyl ethyl ketone		
METO	maximum except for takeoff (power)		
MS	military specification (standard)		
NAS	National Aerospace Standard (specification)		
OAT	outside air temperature		
OD	outside diameter		
PCO	pressure crossfeed valve open		
PHDAN	physically dangerous materials		
psi	pounds per square inch		
RPM	rotations per minute		

General Test Questions, Explanations, Answers, and References

Answers are printed at the bottom of the page, with other coded items as explained below:

This is the question number.

The brackets enclose the letter answer selected by ASA's researchers. (For those questions for which none of the answer choices provide an accurate response, we have noted [X] as the Answer.)

8001 [C] (031) AMT-G Ch 4

The parentheses enclose the appropriate Learning Statement Code (LSC)—refer to Pages ix–xi. FAA Learning Statement Codes have letter-identifying prefixes, but for reference purposes in this book the letter prefix (“AMG”) is omitted and only the number-identifying portion of the code is shown in parentheses.

The reference following the Learning Statement Code is the source from which the answer was derived. The meanings of these abbreviations are found on Page xii. The number following the abbreviations is the specific chapter within that source to study for more information about the derived answer.

Aircraft Drawings

8103. What type of line is normally used in a drawing or blueprint that indicates invisible edges or contours?

- A—Medium-weight short dashes evenly spaced.
- B—Medium-weight very short dashes evenly spaced.
- C—Thin-weight, one long and two short dashes evenly spaced.

A medium-weight dashed line is called a hidden line and is used to show an edge or object not visible to the viewer.

A medium solid line is used as a visible outline or object line.

Alternate short and long light dashes are used to show a center line.

8104. (Refer to Figure 27.) In the isometric view of a typical aileron balance weight, identify the view indicated by the arrow.

- A—1.
- B—3.
- C—2.

View 3 shows the aileron balance weight as seen from the direction shown by the arrow. This view shows the

outline of the weight and the outline of the hole. Both of these are drawn as solid lines.

The two bolt holes are shown as light dashed lines (hidden lines), and there are also two hidden lines that show the break lines where the radius begins for the tip of the weight.

8105. (1) A detail drawing is a description of a single part.

(2) An assembly drawing is a description of an object made up of two or more parts.

Regarding the above statements,

- A—only 1 is true.
- B—neither 1 nor 2 is true.
- C—both 1 and 2 are true.

Statement 1 is true. A detail drawing is a description of a single part that includes enough information to allow the part to be manufactured (fabricated).

Statement 2 is also true. An assembly drawing is a drawing that shows the way various detail parts are put together to form an assembly or a subassembly. Assembly drawings refer to the various parts to be assembled by the drawing number of their detail drawings.

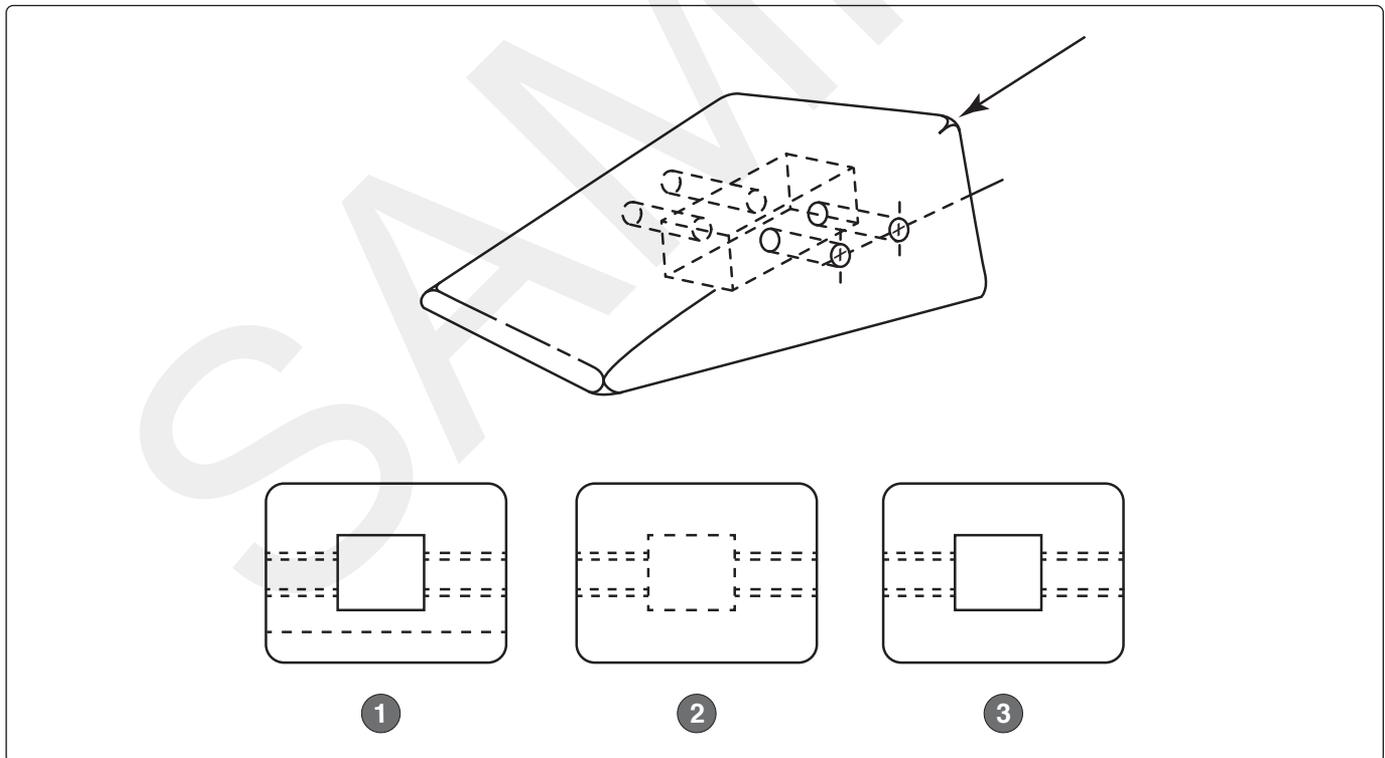


Figure 27. Object views

Answers

8103 [A] (014) AMT-G Ch 5

8104 [B] (013) AMT-G Ch 5

8105 [C] (013) AMT-G Ch 5

8106. (Refer to Figure 28.) Identify the bottom view of the object shown.

- A—2.
- B—3.
- C—1.

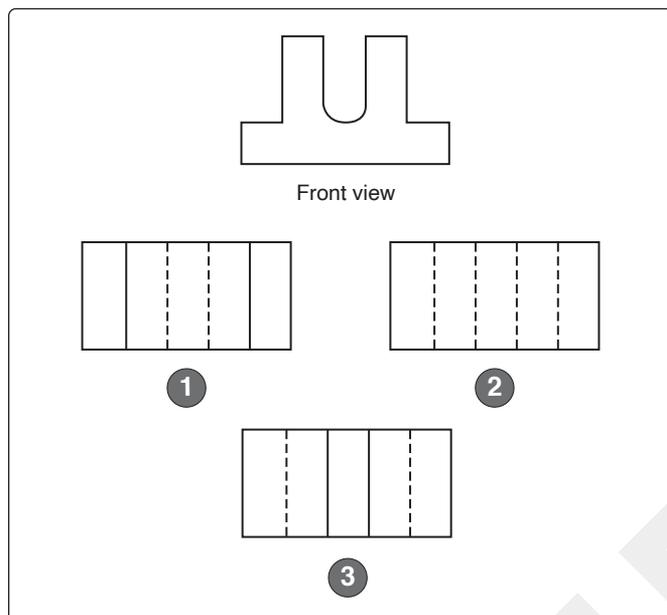


Figure 28. Object views

View 2 shows the part as it would be seen looking up at it from the bottom. The vertical lines are hidden.

View 1 is not a correct orthographic view of this part.

View 3 is not a correct orthographic view of this part.

8107. A specific measured distance from the datum or some other point identified by the manufacturer, to a point in or on the aircraft is called a

- A—zone number.
- B—reference number.
- C—station number.

A station number is a number used to identify the number of inches from the datum or other point identified by the manufacturer to a point in or on the aircraft.

8108. Which statement is true regarding an orthographic projection?

- A—There are always at least two views.
- B—It could have as many as eight views.
- C—One-view, two-view, and three-view drawings are the most common.

An orthographic projection can show as many as six views of an object. One-view, two-view, and three-view drawings are the most commonly used types of orthographic projections.

8109. (Refer to Figure 29.) Identify the left side view of the object shown.

- A—1.
- B—2.
- C—3.

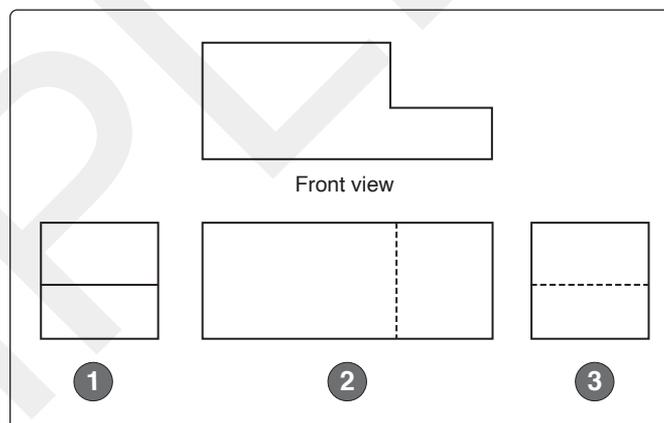


Figure 29. Object views

View 3 is the left side. The horizontal surface is shown as a hidden line.

View 1 is the right side. We see the horizontal surface as a visible line.

View 2 is the bottom view. The vertical surface is shown as a hidden line.

Answers

8106 [A] (013) AMT-G Ch 5

8107 [C] (013) AMT-G Ch 5

8108 [C] (014) AMT-G Ch 5

8109 [C] (013) AMT-G Ch 5

Questions, Explanations, Answers & References

8110. A line used to show an edge which is not visible is a
A—phantom line.
B—hidden line.
C—break line.

A phantom line is a light line made up of an alternate long dash and two short dashes. A phantom line shows the location of a part that is used as a reference.

A hidden line is a medium-weight dashed line that shows a surface or a part that is not visible from the view in which it appears.

A break line is a wavy or a zigzag line used to show that a part has been broken off and only part of it is shown.

8110-1. What type of drawing line consists of alternating long and short lines?
A—Dimension.
B—Center.
C—Hidden.

Centerlines are made up of alternate long and short dashes. They indicate the center of an object or part of an object. Where centerlines cross, the short dashes intersect symmetrically. In the case of very small circles, the centerlines may be shown unbroken.

8111. (Refer to Figure 30.) Identify the bottom view of the object.

- A—1.
- B—2.
- C—3.

View 1 is the bottom. The two vertical surfaces are shown as hidden lines.

View 2 is the left side. The two horizontal surfaces are shown as hidden lines.

View 3 is the top view. The two vertical surfaces are shown as visible lines.

8112. (1) Schematic diagrams indicate the location of individual components in the aircraft.

(2) Schematic diagrams indicate the location of components with respect to each other within the system.

Regarding the above statements,

- A—only 1 is true.
- B—both 1 and 2 are true.
- C—only 2 is true.

Statement 1 is not true. Schematic diagrams do not indicate the location of individual components in the aircraft.

Statement 2 is true. Schematic diagrams do show the location of the components with respect to each other within the system.

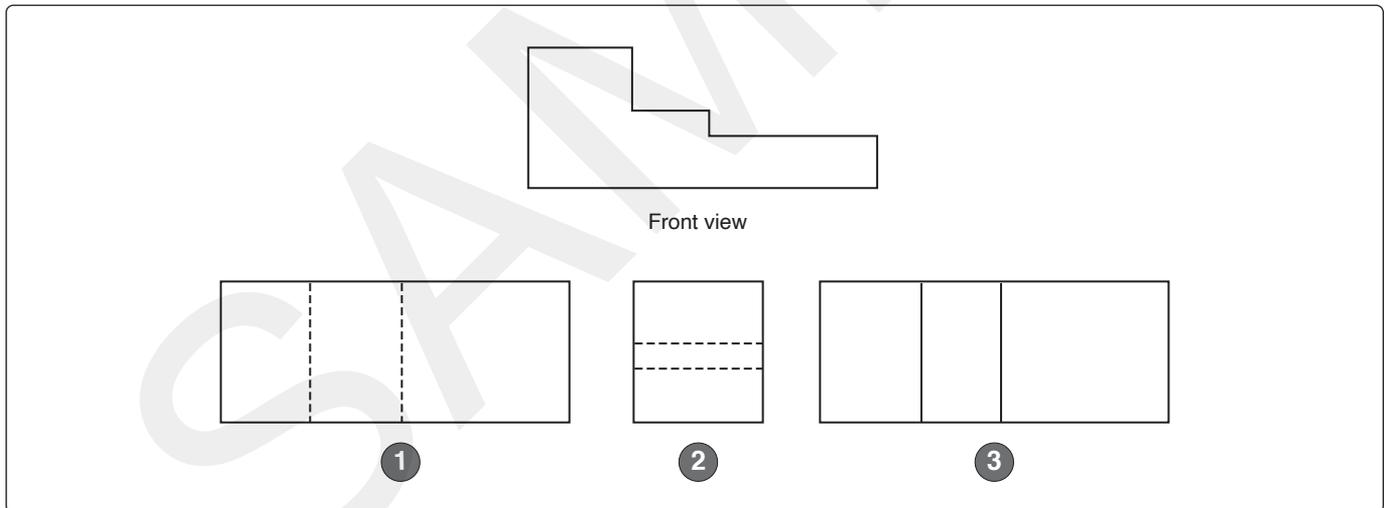


Figure 30. Object views

Answers

8110 [B] (013) AMT-G Ch 5

8110-1 [B] (014) AMT-G Ch 5

8111 [A] (013) AMT-G Ch 5

8112 [C] (014) AMT-G Ch 5

8113. (Refer to Figure 31.) What are the proper procedural steps for sketching repairs and alterations?

- A—3, 1, 4, and 2.
- B—4, 2, 3, and 1.
- C—1, 3, 4, and 2.

An easy way to make a sketch of a repair or alteration is to:

- 3 *Block in the space and basic shape to be used for the sketch;*
- 1 *Add details to the basic block;*
- 4 *Darken the lines that are to show up as visible lines in the finished sketch; and*
- 2 *Add dimensions and any other information that will make the sketch more usable.*

8114. Which statement is applicable when using a sketch for making a part?

- A—The sketch may be used only if supplemented with three-view orthographic projection drawings.
- B—The sketch must show all information to manufacture the part.
- C—The sketch need not show all necessary construction details.

A sketch is a simple, rough drawing made rapidly and without much detail. A sketch is frequently drawn for use in manufacturing a replacement part. Such a sketch must provide all necessary information to those persons who must manufacture the part.

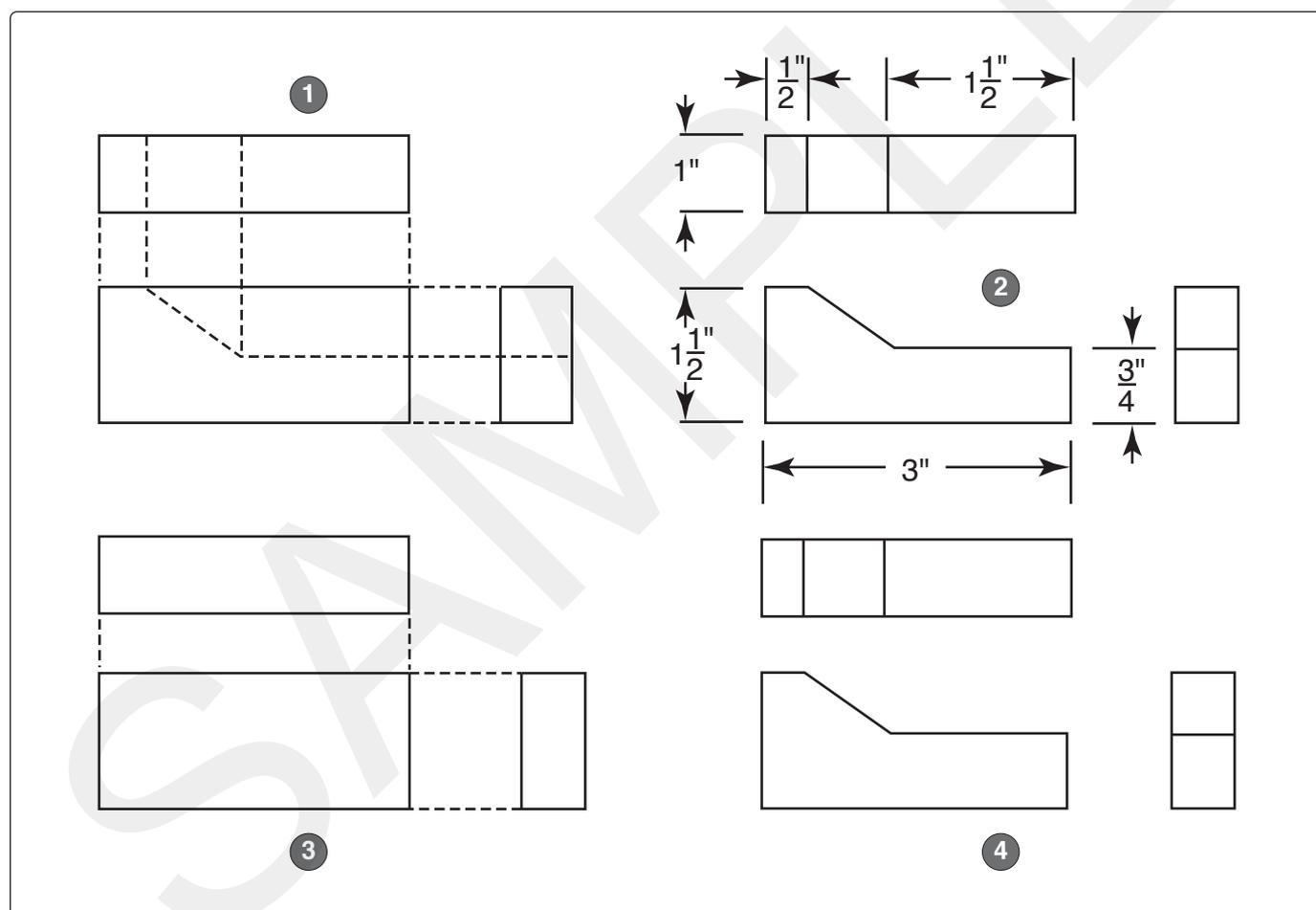


Figure 31. Sketches

Answers

8113 [A] (001) AMT-G Ch 5

8114 [B] (001) AMT-G Ch 5

8115. (Refer to Figure 32.) What is the next step required for a working sketch of the illustration?

- A—Darken the object outlines.
- B—Sketch extension and dimension lines.
- C—Add notes, dimensions, title, and date.

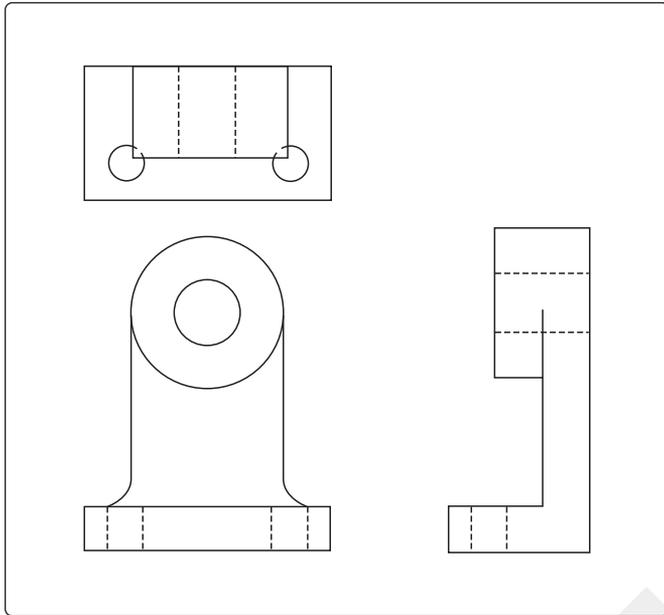


Figure 32. Sketches

In the sketch shown here, the part has already been blocked in, details have been added, the visible lines darkened, and the hidden lines added. The next step is to sketch in the extension lines and the dimension lines.

8116. For sketching purposes, almost all objects are composed of one or some combination of six basic shapes; these include the

- A—angle, arc, line, plane, square, and circle.
- B—triangle, circle, cube, cylinder, cone, and sphere.
- C—triangle, plane, circle, line, square, and sphere.

Almost all objects are composed of one or some combination of the triangle, circle, cube, cylinder, cone, and sphere.

8116-1. In a sectional view drawing, what sections illustrate particular parts of an object?

- A—Removed.
- B—Revolved.
- C—Half.

A removed section illustrates particular parts of an object. It is similar to revolved sections, except it is placed at one side and, to bring out pertinent details, often drawn to a larger scale than the main view on which it is indicated.

8117. What should be the first step of the procedure in sketching an aircraft wing skin repair?

- A—Draw heavy guidelines.
- B—Lay out the repair.
- C—Block in the views.

In making a sketch of a repair, the first thing to do is to block in the views.

As you block in the views, you are able to organize the sketch so it will clearly show the most information.

8117-1. A simple way to find the center of a circle on a sketch or drawing, or a circular piece of material is to

- A—draw two non-parallel chord lines across the circle and then a corresponding perpendicular bisector line across each chord line.
- B—draw two parallel chord lines across the circle and then a corresponding perpendicular bisector line across each chord line.
- C—draw a single chord line across the circle and then a corresponding perpendicular bisector line across each chord line.

An easy way to find the center of a circle on a sketch is to draw two non-parallel chord lines across the circle. Then, draw a perpendicular bisector of each of these chord lines. The bisector lines will cross at the center of the circle.

8118. (1) According to 14 CFR Part 91, repairs to an aircraft skin should have a detailed dimensional sketch included in the permanent records.

(2) On occasion, a mechanic may need to make a simple sketch of a proposed repair to an aircraft, a new design, or a modification.

Regarding the above statements,

- A—only 1 is true.
- B—only 2 is true.
- C—both 1 and 2 are true.

Statement 1 is not true. Part 91 requires that maintenance records contain "a description (or reference to data acceptable to the Administrator) of the work performed..." There is no requirement in Part 91 that a detailed dimensional sketch of a repair become a part of the aircraft's permanent records.

Statement 2 is true. A simple sketch is often needed to help a mechanic make a repair, a new design, or a modification.

Answers

8115 [B] (001) AMT-G Ch 5
8117-1 [A] (001) AMT-G Ch 5

8116 [B] (001) AMT-G Ch 5
8118 [B] (001) AMT-G Ch 5

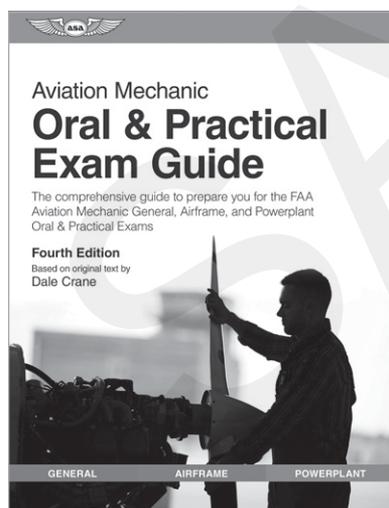
8116-1 [A] (013) AMT-G Ch 5

8117 [C] (001) AMT-G Ch 5

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The Oral and Practical Tests

Prerequisites

All applicants must have met the prescribed experience requirements as stated in 14 CFR §65.77. In addition, all applicants must provide:

1. Proof of having unexpired passing credit for the Aviation Mechanic General (AMG) Knowledge Test by presenting an Airman Knowledge Test Report (except when properly authorized under the provisions of 14 CFR §65.80 to take the practical tests before the airman knowledge tests).
2. Identification with a photograph and signature.

Test Standards

The examiner will download an oral and practical examination that is generated at random for each applicant that reflects all the knowledge and skill “Areas of Operation.”

Areas of Operation are subject areas in which aviation mechanic applicants must have knowledge or demonstrate skill.

“Tasks” are the items that should be performed according to standards acceptable to the examiner.

“Reference” identifies the publication(s) that describe the task. Information contained in manufacturer and/or FAA approved data always takes precedence over textbook referenced data.

The objective of each Task lists the elements that must be satisfactorily performed to demonstrate competency in the Task.

The objective includes:

1. Specifically what the applicant will be able to do.
2. Conditions under which the Task is to be performed.
3. Acceptable standards of performance.

These terms apply to each Task:

- “Inspect” means to examine by sight and touch.
- “Check” means to verify proper operation.
- “Troubleshoot” means to analyze and identify malfunctions.
- “Service” means to perform functions that ensure continued operation.
- “Repair” means to correct a defective condition.
- “Overhaul” means to disassemble, inspect, repair as necessary, and check.

The applicant should be well prepared in all knowledge and skill areas included in the standards.

Satisfactory performance to meet the requirements for certification is based on the applicant’s ability to:

1. Show basic knowledge.
2. Demonstrate basic mechanic skills.
3. Perform the Tasks within the standards of the reference materials.

The practical test is passed if, in the judgment of the examiner, the applicant demonstrates the prescribed level of proficiency on the assigned Tasks in each Area of Operation. Each practical examination item must be performed, at a minimum, to the performance level in the practical test standards. For mechanic testing, there are three practical performance levels:

- Level 1: You must know basic facts and principles and be able to locate information and reference materials. You do not have to interpret information or demonstrate a physical skill.
- Level 2: Know and understand principles, theories, operations, and concepts. You must be able to find, interpret, and apply maintenance data and information. You must be able to select and utilize the appropriate tools and equipment. While you need to demonstrate adequate performance skills, you do not need to demonstrate skill at a high or return-to-service quality level.
- Level 3: Know and understand principles, theories, operations, and concepts. You must be able to find, interpret, and apply maintenance data and information, select and utilize the appropriate tools and equipment to the overall operation and maintenance of an aircraft. You must be able to demonstrate the ability to work independently and make accurate judgments of airworthiness. You must demonstrate skills at a high level which includes the ability to perform return-to-service levels of work.

If, in the judgment of the examiner, the applicant does not meet the standards of any Task performed, the associated Area of Operation is failed and therefore, the practical test is failed.

Typical areas of unsatisfactory performance and grounds for disqualification are:

1. Any action or lack of action by the applicant that requires corrective intervention by the examiner for reasons of safety.
2. Failure to follow recommended maintenance practices and/or reference material while performing projects.
3. Exceeding tolerances stated in the reference material.
4. Failure to recognize improper procedures.
5. The inability to perform to a return-to-service standard, where applicable.
6. Inadequate knowledge in any of the subject areas.

When an applicant fails a test the examiner will record the applicant's unsatisfactory performance and Tasks not completed in terms of Areas of Operation appropriate to the practical test conducted.

SAMPLE

Basic Electricity

Study Materials

Aviation Mechanic Series: General textbook ASA Chapter 4

Aviation Maintenance Technician Handbook—General FAA-H-8083-30A FAA Chapter 12

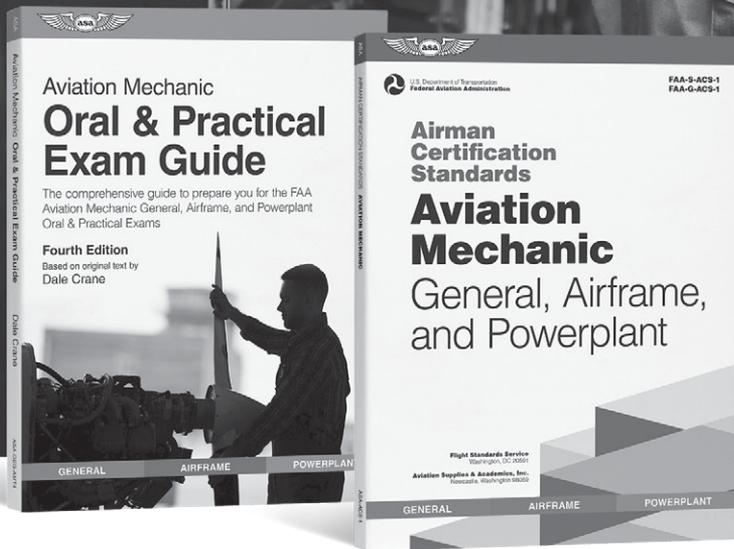
Typical Oral Questions

1. What is the basic unit of voltage?
The volt.
2. What is the basic unit of current?
The amp.
3. What is the basic unit of resistance?
The ohm.
4. Which law of electricity is the most important for an aircraft mechanic to know?
Ohm's law.
5. What are the three elements in Ohm's law?
Voltage, current, and resistance (volts, amps, and ohms).
6. What are five sources of electrical energy?
Magnetism, chemical energy, light, heat and pressure.
7. What four things affect the resistance of an electrical conductor?
The material, the cross-sectional area, the length and the temperature.
8. How can you tell the resistance of a composition resistor?
By a series of colored bands around one end of the resistor.
9. What three things must all electrical circuits contain?
A source of electrical energy, a load to use the energy, and conductors to join the source and the load.
10. What is the purpose of a capacitor?
To store electrical energy in electrostatic fields.
11. What is the basic unit of capacitance?
The farad.
12. Why should electrolytic capacitors not be used in an AC circuit?
They are polarized. An electrolytic capacitor will pass current of one polarity, but will block current of the opposite polarity.
13. What is meant by inductance?
The ability to store electrical energy in electromagnetic fields.
14. What is the basic unit of inductance?
The henry.
15. What is meant by impedance?
The total opposition to the flow of alternating current. It is the vector sum of resistance, capacitive reactance and inductive reactance.
16. How can you find the polarity of an electromagnet?
Hold the electromagnet in your left hand with your fingers encircling the coil in the direction the electrons flow. Your thumb will point to the north end of the electromagnet.
17. In what units is impedance measured?
In ohms.
18. What is the basic unit of electrical power in a DC circuit?
The watt.
19. What is meant by a kilowatt?
1,000 watts.
20. What happens to the current in a DC circuit if the voltage is increased but the resistance remains the same?
The current increases.
21. What are three types of DC circuits, with regard to the placement of the various circuit components?
Series, parallel and series-parallel.
22. How many cells are there in a 24-volt lead-acid battery?
12.

23. What is the specific gravity of the electrolyte in a fully charged lead-acid battery?
Between 1.275 and 1.300.
24. What is the range of temperatures of the electrolyte in a lead-acid battery that does not require that you apply a correction when measuring its specific gravity?
Between 70 degrees and 90 degrees Fahrenheit.
25. What instrument is used to measure the specific gravity of the electrolyte in a lead-acid battery?
A hydrometer.
26. How is a lead-acid battery compartment treated to protect it from corrosion?
Paint it with an asphaltic (tar base) paint or with polyurethane enamel.
27. What is used to neutralize spilled electrolyte from a lead-acid battery?
A solution of bicarbonate of soda and water.
28. How high should the electrolyte level be in a properly serviced lead-acid battery?
Only up to the level of the indicator in the cell.
29. What precautions should be taken in a maintenance shop where both lead-acid and nickel-cadmium batteries are serviced?
The two types of batteries should be kept separate, and the tools used on one type should not be used on the other.
30. Why is a hydrometer not used to measure the state of charge of a nickel-cadmium battery?
The electrolyte of a nickel-cadmium battery does not enter into the chemical changes that occur when the battery is charged or discharged. Its specific gravity does not change appreciably.
31. What is used to neutralize spilled electrolyte from a nickel-cadmium battery?
A solution of boric acid and water.
32. What is meant by electromagnetic induction?
The transfer of electrical energy from one conductor to another that is not electrically connected
33. How many ohms are in a megohm?
One million (1,000,000).
34. What part of an amp is a milliamp?
One thousandth (0.001).

Typical Practical Projects

1. Compute the voltage and current in an electrical circuit specified by the examiner.
2. Find the total resistance of a combination of resistors that are connected in series.
3. Find the total resistance of a combination of resistors that are connected in parallel.
4. Find the power used by an electric motor when the voltage and the current are known.
5. Identify for the examiner electrical symbols used in an aircraft service manual.
6. Measure the voltage drop across each of the components in a series circuit specified by the examiner.
7. Check an electrical circuit for opens or shorts, using an ohmmeter.
8. Measure the current in an electrical circuit, using a multimeter.
9. Measure the resistance of several components, using an ohmmeter.
10. Use an electrical schematic diagram to locate the source of a malfunction described by the examiner.
11. Measure the state of charge of a lead-acid battery.
12. Correctly connect a lead-acid battery to a constant-current battery charger.
13. Correctly remove electrolyte that has been spilled from a lead-acid battery, and protect the surface around the battery from corrosion.
14. Select the proper size terminal and correctly swage it to an electrical wire.
15. Given a group of composition resistors, identify the resistance and tolerance of each one by the color code.
16. Demonstrate to the examiner the correct way to remove and install an aircraft lead-acid battery.
17. Demonstrate to the examiner the correct way to check a solid-state diode to determine whether or not it is good, or if it is open or shorted.



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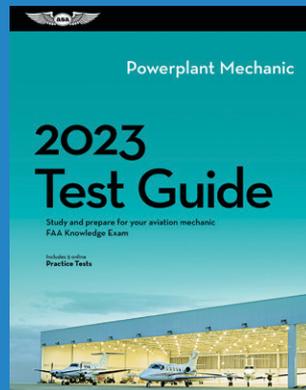
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