

AIRFRAME & POWERPLANT MECHANICS

GENERAL TEST GUIDE

Written, Oral, and Practical

ALIGNS WITH

FAA-H-8083-30B & FAA-H-8083-30B-ATB

Airframe & Powerplant Mechanics General Handbook

2027 EDITION



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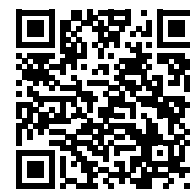
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HOW TO USE THIS TEST GUIDE

This book is designed to help you pass your FAA knowledge exams. But even more important, it is designed to help reinforce your understanding of the subjects which you have been studying in the classroom and shop. However, rather than this being the first book you pick up, it should be the last. When you take that route, you will find the questions in this book both easy and an excellent reinforcement to your studies.

The chapters in this test guide are organized to follow those of the FAA 8083-30B General Handbook, which can be found here: www.actechbooks.com/ap-textbooks.html. The process we suggest is this: Beginning with Chapter 1, first learn from the handbooks and in the classroom. Only when you feel comfortable with each subject, is it time to prepare for your exam. This is the best time to open this Test Guide to confirm what you have learned or to reopen the Handbook to review those topics for which you need reinforcement. You will see that every question in this Test Guide includes its reference pages to that subject in the Handbook to make that process easy. Following this, is then the best time to use SkyPrep and take simulated practice exams for further confirmation that you are ready for the FAA Exam. See page ii for further information about SkyPrep.

ABOUT THE QUESTIONS

In 2011 FAA made the decision to no longer publish the actual test questions. Previous test guides where one could memorize the same questions as would be on your test are no more. Instead, questions in this and other available Test Guides are only examples of the type of question you will receive on your actual test.

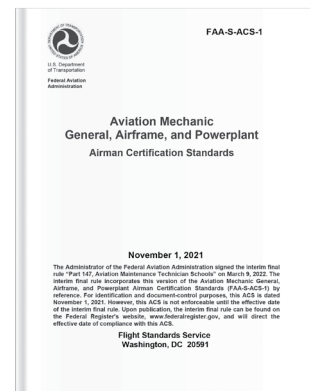
AIRMAN CERTIFICATION STANDARDS (ACS)

As of August 2023 FAA has adopted the Airman's Certification Standards, replacing the older Practical Test Standards. The ACS identifies each topic which you are required to learn subdivided by knowledge, risk management, and practical skills. Each subject is given a learning code found in the ACS. The codes for each question are referenced in this book next to the question number. The complete list of codes is provided in the ACS, which can be downloaded for free below.

Free Download - www.actechbooks.com/test_standards/amt_acs.pdf

Or, if you prefer a printed copy of the ACS, please visit the following link.

Print Copy - www.actechbooks.com/0427-ASA-B.html



2027 VERSION 1

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SAFETY, GROUND OPERATIONS, AND SERVICING

Shop Safety, Flight Line Safety, Fire Protection, Tiedown Procedures,
Land Plane Tiedown, Ground Movement, and Support Equipment

CHAPTER 1

QUESTIONS

1-1 AM.I.F.K15

The Material Safety Risk Diamond illustrated in Figure 1-1 below indicates the _____

- A. material is mildly radioactive.
- B. material flammability risk is high; and reactivity to water is high.
- C. material is biologically hazardous, but not flammable.

1-3 AM.I.F.K7

When should oil levels on a turbine engine be checked?

- A. When the engine is cold.
- B. Immediately after engine shutdown.
- C. When the engine is running at an idle speed.

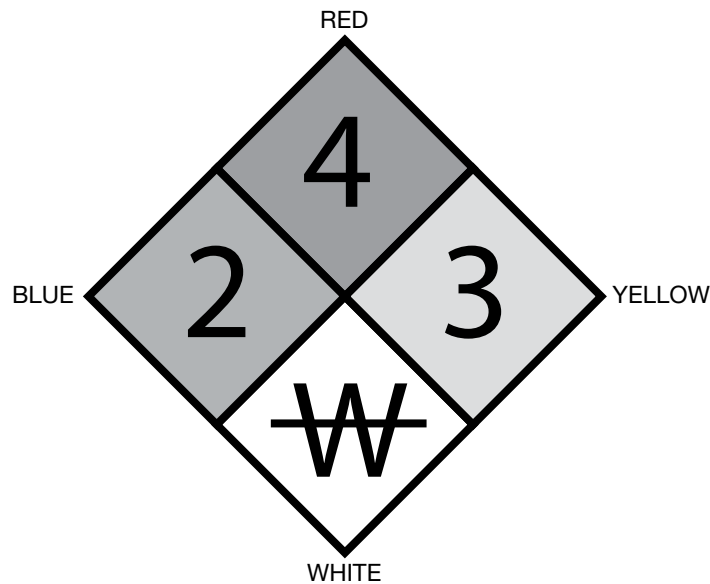


Figure 1-1. Risk Diamond.

1-2 AM.I.F.K15

A risk diamond diagram contains the letter W with a line drawn through it. What does this mean?

- A. The material is soluble in water.
- B. If exposed to the material, flush with water.
- C. There is a danger if the material is exposed to water.

1-4 AM.I.F.K5

A person should approach or leave a helicopter in the pilot's field of vision whenever the engine is running in order to avoid _____

- A. the tail rotor.
- B. the main rotor.
- C. blowing dust or debris caused by rotor downwash.

SAFETY, GROUND OPERATIONS, AND SERVICING

ANSWERS

1-1 Answer B

The risk diamond on the Safety Data Sheet (SDS) label provides a quick reference to the risks associated with the product. Its four color segments represent Flammability (Red), Reactivity (Yellow), Health (Blue), and Special Hazards (White). The numbers (0-4) in the blocks represent the various levels for each hazard; the higher the number the higher the risk. There are only two approved symbols for Special Hazards: letter W with a line through it meaning that the material has a high reactivity to water and OX meaning that the material is a strong oxidizer.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 2

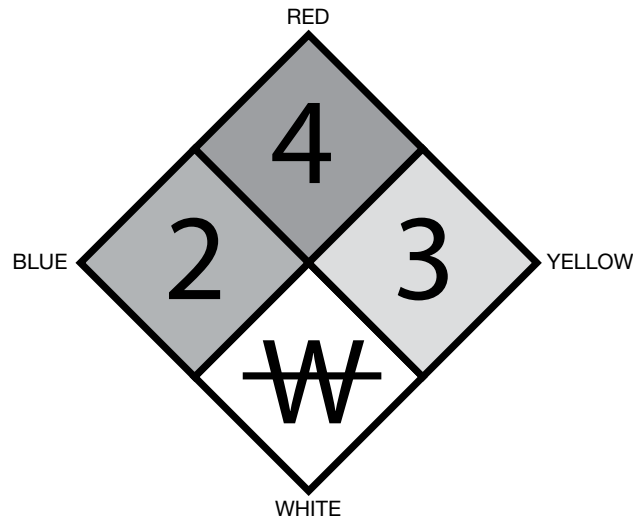


Figure 1-1. Risk Diamond.

1-2 Answer C

A risk diamond typically contains a white segment on the bottom which will alert the user to special or unusual hazards involving the use of the material. The W segment (with a line through it) signifies that the material is highly reactive when exposed to water. For example, when exposed to water the material can ignite or give off toxic gasses.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 2

1-3 Answer B

While on a reciprocating engine oil is checked after the engine has been inactive, a turbine engine's oil level is checked immediately after shutdown. This is because dry sump oil systems tend to hide oil that has seeped from the oil tank into the gear case of the engine. This oil in the gear case does not show up on the dipstick in the oil tank. Oil levels should be checked quickly after shutdown, before it has a chance to seep into the gear case.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 21

1-4 Answer A

Always approach the helicopter in view of the pilot. Approaching for any other direction is dangerous; the tail rotor is invisible when operating and the pilot will not see you. Additional safety precautions is not to approach the helicopter if the main rotor is turning, unless approved to do so and in the pilot's field of vision. If you should get dust or debris in your eyes while approaching or leaving a helicopter, immediately sit down to avoid further possible injury.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 4

SAFETY, GROUND OPERATIONS, AND SERVICING

QUESTIONS

1-5 AM.I.F.K16

Most mechanic's tool boxes include cutouts in each drawer identifying the tool which is stored in it. What is the primary purpose of those cutouts?

- A. FOD control.
- B. Protects the tool from damage.
- C. Quick location of the proper tool size.

1-8 AM.I.F.K6

Never use CO2 type fire extinguishers on burning metal because it _____

- A. can release toxic fumes.
- B. can cause explosive conditions on the metal.
- C. is generally ineffective.

1-6 AM.I.F.K6

A Class B fire involves _____

- A. petroleum products or combustible liquids.
- B. energized electrical wiring.
- C. material such as wood, paper, upholstery, etc.

1-9 AM.I.F.K6

The principle drawback of Halon 104, 1001, and 1202 type fire extinguishers is that they _____

- A. must be stored in high pressure cylinders.
- B. are extremely toxic.
- C. are ineffective against electrical fires.

1-7 AM.I.F.K7

When inspecting an aircraft hydraulic system with a ground cart, which is the primary safety concern?

- A. Fire due to an electrostatic discharge.
- B. The caustic nature of hydraulic fluid.
- C. The integrity of the ground equipment.

1-10 AM.I.F.K6

What class of fire involves the combustion of metallic material such as magnesium?

- A. Class B
- B. Class C
- C. Class D

SAFETY, GROUND OPERATIONS, AND SERVICING

ANSWERS

1-5 Answer A

When completing a task, an empty tool slot informs the mechanic that the tool has been left somewhere in the work area. Tools left within the aircraft or engine inlets is a primary and common cause of Foreign Object Damage (FOD). Always be sure to carefully inspect your tool case for missing tools.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 4

1-6 Answer A

Class B fires are caused by flammable petroleum products or other flammable or combustible liquids, greases, solvents, paints, and so forth.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 5

1-7 Answer C

Portable hydraulic test units must be treated with extreme caution as they are capable of delivering pressures up to 3,000 psi. At this pressure, even a small stream from a leak can cut like a sharp knife. Lines and fittings must always be carefully inspected for cuts, frays, or other damage and must be free of kinks and twists. When not in use, hydraulic unit hoses should be wound on a reel and kept clean and dry.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 5-6

1-8 Answer B

Never use CO₂ on Class D fires. As with water extinguishers, the cooling effect of CO₂ on the hot metal can cause explosive expansion of the metal.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 5

1-9 Answer B

Halon 104, 1001, and 1202 all have high Underwriters Laboratory (UL) toxicity ratings and are not recommended for aircraft use.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 6

1-10 Answer C

Class D fire, is defined as fire in flammable metal. Usually Class D fires involve magnesium in the shop or in aircraft wheels and brakes, or are the result of improper or poorly conducted welding operations.

Ref: General Handbook H-8083-30B-ATB, Chapter 1 Page 5

SAFETY, GROUND OPERATIONS, AND SERVICING

ANSWERS

ORAL EXAM

- 1-24(O). The dissolved water is not a major problem until, as the temperature lowers, it becomes free water. This then poses a problem if ice crystals form, clogging filters and other small orifices. Solid contaminants are insoluble in fuel. The more common types are rust, dirt, sand, gasket material, lint, and fragments of shop towels. The close tolerances of fuel controls and other fuel-related mechanisms can be damaged or blocked by particles as small as one twentieth the diameter of a human hair. The effects of microorganisms are: 1) Formation of slime or sludge that can foul filters, separators, or fuel controls, 2) Emulsification of the fuel and 3) Corrosive compounds that can attack the fuel tank's structure. In the case of a wet wing tank, the tank is made from the aircraft's structure. They can also have offensive odors.

Ref: General Handbook H-8083-30B-ATB, Chapter 1

- 1-25(O). Entrained water is suspended water droplets. These droplets may not be visible to the eye, but will give the fuel a cloudy look. The entrained water will settle out in time.

Ref: General Handbook H-8083-30B-ATB, Chapter 1

- 1-26(O). Adding TEL to aviation fuel increases the critical pressure and temperature of a fuel. It also lubricates the engine valves.

Ref: General Handbook H-8083-30B-ATB, Chapter 1

- 1-27(O). No. The lower grades of automobile fuel are not held within the tolerances required for aviation gasoline and usually contain a conservable amount of cracked gasoline, which may form excessive gum deposits. For these reasons, automobile fuels should not be used in aircraft engines, especially air-cooled engines operating at cylinder temperatures.

NOTE: Some engines have been issued Supplemental Type Certificates that allow the engine to be modified to use automotive gasoline. This modification will be noted in the aircraft documentation.

Reference: AC65-9A

- 1-28(O). A, B, C, and D

Ref: General Handbook H-8083-30B-ATB, Chapter 1

- 1-29(O). Class A fires occur in ordinary combustible materials, such as wood, cloth, paper, upholstery materials, etc. Class B fires occur in flammable petroleum products of other flammable or combustible liquids, greases, solvents, paints, and so forth.

Class C fires occur involve energized electrical wiring and equipment.

Class D fires involve magnesium.

Ref: General Handbook H-8083-30B-ATB, Chapter 1

- 1-30(O). Most extinguishers have a pin to pull that will allow the handle to activate the agent. Stand back 8 feet and aim at the base of the fire or flames. Squeeze the lever and sweep side to side until the fire is extinguished. A great way to remember this is use the acronym PASS – PULL the pin, AIM the hose/nozzle at the base of the fire, SQUEEZE the lever, and SWEEP the hose side to side.

Ref: General Handbook H-8083-30B-ATB, Chapter 1

- 1-31(O). Fire extinguishers are marked using the same classification system as fires. Use the corresponding class fire extinguisher with the fire classification. A for A, B for B, C for C, and D for D. There are some fire extinguishers that can be used on multiple fire classifications and these are marked accordingly.

Ref: General Handbook H-8083-30B-ATB, Chapter 1, Figure 1-7

PRACTICAL EXAM

- 1-1(P). Given an aircraft or a landing gear mockup, service the tires per the maintenance manual.
- 1-2(P). Given an aircraft or a landing gear mockup, service the struts per the maintenance manual.
- 1-3(P). Given an aircraft or simulator, start, run-up, and shut down the aircraft or simulator.
NOTE: Always use the checklist. Aircraft used can be equipped with either a reciprocating or a turbine engine.
- 1-4(P). Demonstrate the proper hand signals used during aircraft ground operations.
NOTE: This can be accomplished in numerous ways. You may be asked to physically demonstrate various hand signals as called out by the examiner, the examiner may demonstrate them and you must explain what is meant, or you may be provided with pictures of the various hand and light signals and describe their meaning to the examiner.
- 1-5(P). Given the appropriate documentation, determine the approved engine oil(s) for a specific engine.
- 1-6(P). Given an aircraft, secure the aircraft for outside storage.
NOTE: Be prepared to tie-down various types of aircraft: tricycle, tail wheel, and/or helicopter.
- 1-7(P). Given an aircraft, fuel and/or defuel the aircraft, per the maintenance manual.
NOTE: This activity may be simulated.
- 1-8(P). Given an aircraft, sample the fuel, determining if the proper fuel is used, and whether contaminants have entered the fuel system.
- 1-9(P). Given an aircraft, set-up and connect an aircraft to a ground power unit.
- 1-10(P). Given an aircraft, connect a tow bar and prepare the aircraft for towing.
- 1-11(P). Given the approved hand signals, direct the movement of an aircraft.
- 1-12(P). Given an aircraft for engine mockup, locate and clear a liquid lock in the aircraft engine.
- 1-13(P). Given fire extinguishers or pictures of fire extinguishers, identify the types/classes of fires each fire extinguisher can be used for in a shop or on the flight line.