

# AIRFRAME & POWERPLANT MECHANICS

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## GENERAL WORKBOOK

Written, Oral & Practical FAA Exam Prep with Practical Test Standards

FOR USE WITH

**FAA-H-8083-30A & FAA-H-8083-30A-ATB**

Airframe & Powerplant Mechanics Handbook

by **Thomas Wild and Michael Leasure**



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# PREFACE

This Student Workbook is designed as a companion to the Aviation Maintenance Mechanics General Handbook FAA-H-8083-30 and FAA-H-8083-30A-ATB. Each chapter of this workbook matches the equivalent chapter in the Handbook and contains study questions, exercises, and a final exam for that chapter. Each is designed to enhance your understanding of the material in the textbook and to better prepare you for success with your actual FAA written exams and later in your career as a professional aviation maintenance technician.

Each chapter of this Workbook is presented in 3 parts:

1. Study Aid Questions are fill in the blank, multiple choice, true or false, and matching formats designed to reinforce the most important concepts presented in the Handbook.
2. Knowledge Application Questions; giving you an opportunity to actually use the material presented in each chapter to solve common problems.
3. Final Chapter Exam, in multiple choice format designed to further reinforce your study skills and to be used by instructors as end of chapter exam and as an evaluation of your progress.

The answers to Sections A&B questions may be found in the back of this workbook and can so be used by students as a part of your personal study habits. The answers to Section C - Final Chapter Exams, are available only to instructors as part of the instructor support package for the H-8083 textbook series, thus preserving the value of the exam as a valid instructional tool.

Each page in this book is perforated allowing students to tear out and turn in assigned sections which may be given as homework or in-class exercises.

For further information about this Workbook, its corresponding Textbook, or to order additional copies in print or electronic format, please contact Aircraft Technical Book Company at 970.726.5111, or email to [orders@actechbooks.com](mailto:orders@actechbooks.com), or visit our web site at [www.actechbooks.com](http://www.actechbooks.com).

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## Section A Study Aid Questions

1. Keeping hangars, shop, and the flight-line \_\_\_\_\_ and \_\_\_\_\_ is essential to safety and efficient maintenance.
2. \_\_\_\_\_ and \_\_\_\_\_ should watch for their own safety and for the safety of others working around them.
3. Three pieces of protective safety gear which should always be used when working around electricity are: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
4. Anytime current flows, a byproduct of that flow is \_\_\_\_\_.
5. Ensure that all power cords, wires, and lines are free of \_\_\_\_\_ and \_\_\_\_\_ which can damage the wire.
6. When inflating tires on any type of aircraft wheels, \_\_\_\_\_ should always be used.
7. \_\_\_\_\_ are very important to shop safety and making shop personnel aware of safety risks of certain materials.
8. The \_\_\_\_\_ are a more detailed version of the chemical safety issues.
9. The National Fire Protection Association (NFPA), for commercial purposes, has classified fires into three basic types: \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
10. When using \_\_\_\_\_, make sure you have the correct type for the fire.
11. \_\_\_\_\_ is any damage caused by any loose object to aircraft, personnel, or equipment.
12. When approaching a helicopter while the blades are turning, observe the rotor-head and blades to see if they are \_\_\_\_\_.
13. Before starting an aircraft engine make sure that no property damage or personal injury will occur from the \_\_\_\_\_ or \_\_\_\_\_.
14. While touching a \_\_\_\_\_, always assume that the ignition is on.
15. Unlike \_\_\_\_\_ engine aircraft, the turbojet-powered aircraft does not require a preflight run-up unless it is necessary to investigate a suspected malfunction.

# SAFETY, GROUND OPERATIONS, AND SERVICING

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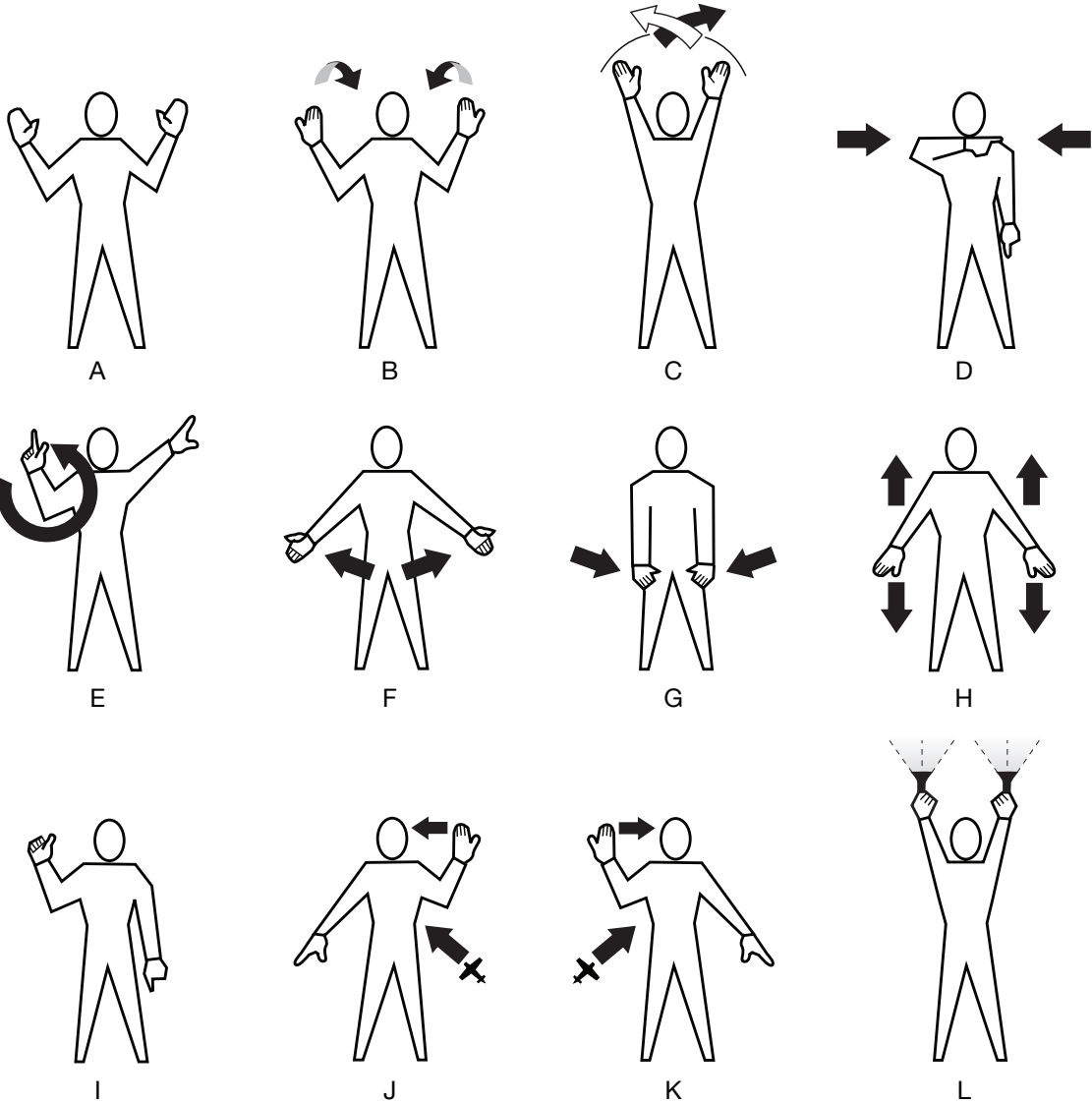
## Section A True or False

- \_\_\_\_\_ 1. Human factors should be introduced to aircraft maintenance personnel to make them aware of how it affects the maintenance performed.
- \_\_\_\_\_ 2. Maintenance technicians need not be aware of how human factors can affect their performance and safety while performing maintenance practices.
- \_\_\_\_\_ 3. Keeping hangars, shop, and flight-lines orderly and clean is essential to safety and efficient maintenance.
- \_\_\_\_\_ 4. Safety lanes, walkways, or fire lanes should not be painted around the perimeter inside hangars.
- \_\_\_\_\_ 5. To safely deal with electricity, the technician must have a working knowledge of the principles of electricity, and a healthy respect for its capability to do both work and damage.
- \_\_\_\_\_ 6. Two factors that affect safety with electricity are, dampness and how much electricity you can stand.
- \_\_\_\_\_ 7. Anytime current flows, whether during generation or transmission, a byproduct of that flow is heat.
- \_\_\_\_\_ 8. Compressed air, like electricity, is an excellent tool as long as it is under control.
- \_\_\_\_\_ 9. Using compressed air to clean hands or clothing can force debris into the flesh leading to infection.
- \_\_\_\_\_ 10. The most observable portion of the MSDS Label is the risk diamond; a 4 color segmented diamond that represents Flammability (Red), Reactivity (Yellow), Health (Blue) and special Hazard (White).
- \_\_\_\_\_ 11. In the Flammability, Reactivity, and Health blocks there should be a number from 0 to 2.
- \_\_\_\_\_ 12. Hazards in a shop's operation increase when the operation of lathes, drill presses, grinders, and other types of machines are used.
- \_\_\_\_\_ 13. Since most petroleum products float on water, water-type fire extinguishers are very much recommended for Class B fires.
- \_\_\_\_\_ 14. Never use water-type fire extinguishers on Class D fires. Because metals burn at extremely high temperatures, the cooling effect of water causes an explosive expansion of the metal.
- \_\_\_\_\_ 15. When perform maintenance on the flight-line you must always be aware of what is going on around them.

# SAFETY, GROUND OPERATIONS, AND SERVICING

## Section B Knowledge Application Questions

Matching: Identify these standard FAA hand taxi signals below.



A. \_\_\_\_\_  
 B. \_\_\_\_\_  
 C. \_\_\_\_\_  
 D. \_\_\_\_\_

E. \_\_\_\_\_  
 F. \_\_\_\_\_  
 G. \_\_\_\_\_  
 H. \_\_\_\_\_

I. \_\_\_\_\_  
 J. \_\_\_\_\_  
 K. \_\_\_\_\_  
 L. \_\_\_\_\_

# SAFETY, GROUND OPERATIONS, AND SERVICING

## Section C

### Final Chapter Exam

1. The color of 100LL fuel is?
  - A. Blue.
  - B. Colorless or straw.
  - C. Red.
2. What must accompany fuel vaporization?
  - A. Absorption of heat.
  - B. Decrease in vapor pressure.
  - C. Reduction in volume.
3. A fuel that vaporizes too readily may cause?
  - A. Hard starting.
  - B. Detonation.
  - C. Vapor lock.
4. The main differences between grades 100 and 100LL fuel are?
  - A. Volatility and lead content.
  - B. Volatility, lead content, and color.
  - C. Lead content and color.
5. Tetraethyl lead is added to aviation gasoline to?
  - A. Retard the formation of corrosives.
  - B. Improve the gasoline's performance in the engine.
  - C. Dissolve the moisture in the gasoline.
6. How are aviation fuels, which possess greater antiknock qualities than 100 octane, classified?
  - A. According to the milliliters of lead.
  - B. By reference to normal heptane.
  - C. By performance numbers.
7. What effect, if any, will aviation gasoline mixed with jet fuel have on a turbine engine?
  - A. No appreciable effect.
  - B. The tetraethyl lead in the gasoline forms deposits on the turbine blades.
  - C. The tetraethyl lead in the gasoline forms deposits on the compressor blades.
8. When towing a large aircraft
  - A. A person should be in the cockpit to watch for obstructions.
  - B. Persons should be stationed at the nose, each wingtip, and the empennage at all times.
  - C. A person should be in the cockpit to operate the brakes.
9. When first starting to move an aircraft while taxiing, it is important to always?
  - A. Test the brakes.
  - B. Closely monitor the instruments.
  - C. Notify the control tower.
10. When taxiing an airplane with a quartering tailwind, the elevators and
  - A. Upwind aileron should be held in the up position.
  - B. Upwind aileron should be held in the down position.
  - C. Both ailerons should be kept in the neutral position.
11. 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.