



Update to Flight Engineer Test

Flight Engineer Test Prep

November 2011

ASA-TP-FE

With the following changes, ASA's *Flight Engineer Test Prep* provides complete preparation for the FAA Flight Engineer Knowledge Exams.

About the Test Changes

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 provide the largest sampling of representative FAA questions available and they are derived from history and experience with the FAA testing process. You might see similar although not exactly the same questions on your official FAA exam. Answer stems may be rearranged from the A, B, C order you see in this book. Therefore, be careful to fully understand the intent of each question and corresponding answer while studying, rather than memorize the A, B, C answer. You may be asked a question that has unfamiliar wording; studying and understanding the information in this book and the associated reference documents will give you the tools to answer all types of questions with confidence.

We invite your feedback. After you take your official FAA exam, let us know how you did. Were you prepared? Did the ASA products meet your needs and exceed your expectations? We want to continue to improve these products to ensure applicants are prepared, and become safe aviators. Send feedback to: cfi@asa2fly.com

The next FAA test change is expected in June 2012.

Page Number	Question Number	Correct Answer	Explanation
x	Process for Taking a Knowledge Test		<i>The 5th paragraph is changed to read:</i> Your test will be graded immediately upon completion. You will be allowed 10 minutes to review any questions you missed. You will see the question only; you will not see the answer choices or your selected response. This allows you to review the missed areas with an instructor prior to taking the Practical exam. After this review period you will receive your Airman Test Report, with the testing center's embossed seal, which reflects your score.
xi	Testing Sites		<i>LaserGrade (PSI) phone number is changed to 1-800-211-2753</i>
xvii	Test-Taking Tips		<i>Item #14 is added to read:</i> Your test will be graded immediately upon completion. You will be allowed 10 minutes to review any questions you missed. You will see the question only; you will not see the answer choices or your selected response. This allows you to review the missed areas with an instructor prior to taking the Practical exam.
1-9	1101	[C]	<i>The question is changed to read:</i> 1101. Which CFR governs airplane operations when common carriage is not involved with airplanes over 80,000 pounds GTOW or more than 20 passenger seats?
1-9	1102	[A]	<i>The answer stems are changed to read:</i> A—Test flight. B—Revenue cargo flight. C—Passenger flight with compensation.
1-28	1086	[B]	<i>The answer stems are changed to read:</i> A—Discussing stock market reports during taxi. B—None. C—Confirming airplane logbook entries during climb when clear of the airport traffic area.

Page Number	Question Number	Correct Answer	Explanation
1-28	1876	[A]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1876. What is considered to be flight crewmember essential conversation?</p> <p>A—Discussing the weather north of the flight route. B—Discussing the crew configuration for the following leg of the flight. C—Confirming airplane logbook entries during climb when clear of the airport traffic area.</p> <p>Conversations not pertinent for the safe operation of the aircraft are considered nonessential. (PLT440) — 14 CFR Part 121</p>
1-31	1859	[A]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1859. All 14 CFR 139 airports must report</p> <p>A—accident and incident data annually. B—noise complaint statistics for each departure procedure or runway. C—declared distances for each runway.</p> <p>All 14 CFR Part 139 airports must report 12 consecutive calendar months for each accident or incident in movement areas and safety areas involving an air carrier aircraft and/or ground vehicle. (PLT078) — 14 CFR §139.301</p>
1-32	1105	[C]	<p><i>Answer stem C and the explanation are changed to read:</i></p> <p>C—Replenish hydraulic fluid according with applicable regulations and the certificate holder's manuals.</p> <p>Flight engineers may replenish hydraulic fluid, in accordance with applicable regulations and the certificate holder's manuals.</p>
2-19	1124	[C]	<p><i>The answer stems are changed to read:</i></p> <p>A—equivalent airspeed for compressibility. B—equivalent airspeed for nonstandard temperature and humidity. C—equivalent airspeed for the air-density variation from the standard value at sea level.</p>
3-4	1680	[C]	<p><i>Answer stem C is changed to read:</i></p> <p>C—+95°F.</p>
3-10	1093	[A]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1093. An in-flight condition necessary for structural icing to form is</p> <p>A—moisture. B—stratiform clouds. C—cirrostratus clouds.</p> <p>Two conditions are necessary for structural icing in flight: (1) the aircraft must be flying through visible water such as rain or cloud droplets, and (2) temperature at the point where the moisture strikes the aircraft must be 0°C or colder. (PLT274) — AC 00-6A</p>
3-11	1861	[C]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1861. Ice accumulation is usually negligible at temperatures below</p> <p>A—0°C. B— -20°C. C— -40°F.</p> <p>Water cannot exist in a liquid state below about -40°C (also -40°F) and so there is almost no icing hazard at or below that temperature. (PLT274) — AC 00-6</p>

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4-45	1832	[B]	<i>In the explanation, step #2, Wt. Moved Moment is changed from “-1,518.8” to “-1,528.8”</i>
5-14	1008	[B]	<p><i>A new question is added to read:</i> FEX, FET 1008. What recovery would be appropriate in the event of compressor stall?</p> <p>A—Reduce the thrust lever and then rapidly advance the thrust lever to decrease the angle of attack on the compressor blades, creating more airflow. B—Reduce the thrust lever and then slowly advance the thrust lever again to decrease the angle of attack on one or more compressor blades. C—Advance the thrust lever slowly to increase airflow and decrease the angle of attack on one or more compressor blades.</p> <p>If a compressor stall is transient and intermittent, the indication will be an intermittent “bang” as backfire and flow reversal take place. If the stall develops and becomes steady, strong vibration and a loud roar develop from the continuous flow reversal. Damage can occur immediately from a steady stall. Recovery must be accomplished by reducing thrust, lowering the angle of attack, and increasing airspeed. (PLT499) — The Aircraft Gas Turbine Engine and Its Operation</p>
5-18	1872	[A]	<p><i>A new question is added to read:</i> FEX, FET 1872. The fuel heater system may be</p> <p>A—manually or automatically controlled. B—on and heating all the time. C—on and heating all the time with JET A fuel.</p> <p>Fuel heat in a turbine engine fuel system is used when the fuel temperature is near 0°C. It may be automatically activated when the fuel nears this temperature or it may be manually selected by a switch in the cockpit. (PLT253) — AC 65-12</p>
5-22	1644	[B]	<p><i>The answer stems are changed to read:</i></p> <p>A—crudes that are ash free. B—that does not form ash deposits. C—that has had all ash removed in the refining process.</p>
5-25	1581	[A]	<p><i>The answer stems are changed to read:</i></p> <p>A—hot section burnout or metal distortion. B—compressor temperature limits from being exceeded. C—dangerous gas temperatures and velocities when accelerating to idle from injuring personnel or damaging the engine.</p>
5-29	1608	[A]	<p><i>The question, explanation, and explanation for incorrect answers are changed to read:</i> 1608. It is important to note the maximum EGT when starting a turbine engine to</p> <p>A—determine whether the engine must be inspected or removed and overhauled. B—prevent operation in excess of limits which may cause compressor burn-through or metal distortion. C—prevent dangerous temperatures and gas velocities which may cause injury to personnel and ground service equipment.</p> <p>It is important to note the maximum EGT during start to determine if operating limits are exceeded, and whether an engine must be inspected or removed and overhauled. (T24) — Aircraft Powerplants</p> <p>Answer (B) is incorrect because while it is true that proper monitoring prevents operations in excess of limits, the burner can, not the compressor, is in danger of burning or distortion. Answer (C) is incorrect because while it is important to note ground personnel’s proximity to the jet exhaust, it is most important for the proper operation of the engine to monitor the EGT for an over-temperature condition during starting.</p>
5-37	1663	[C]	<p><i>The question is changed to read:</i> 1663. Excessive oil in radial engines in the lower cylinders between pistons and heads is an indication of</p>

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6-6	1873	[C]	<p><i>A new question is added under "Gasoline vs. Kerosene" to read:</i></p> <p>ALL 1873. Most AVGAS is A—purple. B—red. C—blue.</p> <p>Since use of the correct fuel is critical, dyes are added to help identify the type and grade of fuel. 100LL AVGAS is blue. (PLT250) — AC65-12</p> <p>Answer (A) is incorrect because purple is not used as a gas color in aviation. Answer (B) is incorrect because red is used for 80 octane AVGAS which is no longer used very often.</p>
6-7	1860	[A]	<p><i>A new question is added to read:</i></p> <p>ALL 1860. The captain says to load on 10,000 pounds of fuel. The fuel is 6.5 pounds per gallon. How many liters should the flight engineer order? A—5,825.00 B—6,500.00 C—7,110.00</p> <p>10,000 pounds of fuel = 6.5 pounds per gallon = 1,538.46 gallons One liter = 0.2642 gallon 1,538.46 gallons / 0.2642 = 5,823 liters (PLT016) — FAA-H-8083-25</p>
6-9	1453	[C]	<p><i>The answer stems and explanation are changed to read:</i></p> <p>A—be able to purge any fuel tank. B—jettison fuel during emergencies. C—help maintain the aircraft's center of gravity.</p> <p>Fuel transfer capability helps maintain the aircraft's stability and CG. (T48) — Aircraft Maintenance and Repair</p>
6-12	1204	[C]	<p><i>Change answer stem C and the explanation to read:</i></p> <p>C—Excessively lean fuel-air mixture.</p> <p>Detonation is caused by excessive temperature and pressure in the cylinder. This can result from an excessively lean fuel-air mixture.</p>
7-18	1858	[A]	<p><i>A new question is added under "High-Lift Devices" to read:</i></p> <p>FEX 1858. If the leading edge slats (flaps) will not extend, you A—know lift will be less at slower speeds. B—expect aileron control to improve during low angles of attack. C—anticipate increased air flow over the trailing edge flaps and a resulting nose lifting force.</p> <p>Leading-edge slats conduct high-energy air from under the wing into the boundary layer along the top of the wing, providing sufficient lift for flight at relatively slow speeds and angles of attack. If the leading edge slats will not extend, lift will be less at slower speeds. (PLT305) — FAA-H-8083-25</p>
7-21	1874	[B]	<p><i>A new question is added to read:</i></p> <p>ALL 1874. When inflating tires from a high-pressure bottle, always A—use industrial oxygen. B—use a pressure regulator on the bottle. C—slowly inflate directly from the nitrogen bottle.</p> <p>When inflating tires on any type of aircraft wheels, always use tire cage guards. Use pressure regulators on high-pressure air bottles to eliminate the possibility of overinflation of tires. (PLT138) — FAA-H-8083-30</p>

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7-24	1875	[A]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1875. Moisture in a pneumatic system is removed</p> <p>A—by the moisture separator. B—in the compressor stage. C—by the filter.</p> <p>The moisture separator is the pneumatic power system’s pressure-sensing regulator and relief valve, and is capable of removing up to 95 percent of the moisture from the air compressor discharge line. (PLT338) — AC 65-15</p>
8-5	1867	[A]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1867. An AC generator control unit will</p> <p>A—protect the generator and electrical system from reverse currents, overexcitation, and overvoltages. B—convert undervoltage to the desired value, acknowledge differential faults, and facilitate manual paralleling. C—command generator RPM increases in underspeed conditions and include bus-tie circuit-breaker automatic closing.</p> <p>The most basic generator control units perform a number of functions related to the regulation, sensing, and protection of the generator system. (PLT207) — FAA-H-8083-30</p>
8-6	1868	[B]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1868. If one of the generators fails in a parallel bus electrical system,</p> <p>A—bus control circuitry will automatically shed all of that generator’s load. B—the electrical load is automatically supplied by the remaining generator, up to its load limit. C—each generator supplies power separately from the other generators to its respective bus.</p> <p>A parallel bus electrical system will share the load equally and provide automatic redistribution of loads in the event of a failure. (PLT207) — FAA-H-8083-30</p>
8-10	1387	[B]	<p><i>The question and explanation are changed to read:</i></p> <p>ALL</p> <p>1387. Overcharging a nickel-cadmium battery will likely result in a release of</p> <p>A—toxic nickel hydroxide liquid or steam. B—Oxygen and explosive hydrogen gases. C—Highly combustible acetylene and oxygen gases.</p> <p>When a nickel-cadmium battery is overcharged, a combination of hydrogen and oxygen is released by the battery. The combined gas is potentially explosive. (PLT109) — FAA-H-8083-30</p>
8-11	1390	[C]	<p><i>The question and explanation are changed to read:</i></p> <p>ALL</p> <p>1390. Thermal runaway in nickel-cadmium batteries is usually caused by</p> <p>A—low temperatures and high discharge rates. B—deep rapid discharges and low charge rates. C—high temperatures and constant-voltage charging.</p> <p>A combination of high battery temperature (in excess of 100°F) and overcharging can lead to a condition called “thermal runaway.” (PLT109) — AC00-33A</p>

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8-11	1863	[C]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1863. What instrument readings would indicate a ni-cad battery thermal runaway?</p> <p>A—Increasing OAT and generator loading while the battery charge current is decreasing. B—High temperature and battery discharging at a constant rate, regardless of loadmeter indications. C—Continuously rising charge current and increasing battery temperature.</p> <p>“Thermal runaway” is an uncontrollable rise in battery temperature that will ultimately destroy the battery. This condition can occur when a nickel-cadmium battery is operated at above normal temperatures and is subjected to high charging currents associated with constant voltage charging. As the temperature of the battery increases, the effective internal resistance decreases and higher current is drawn from the constant voltage charging source. The higher current increases the battery temperature which in turn results in even higher charging currents and temperatures. (PLT109) — AC00-33A</p>
8-14	1865	[B]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1865. Fuses are sized to carry no more current than</p> <p>A—the generator will energize. B—the wires can carry. C—a holder will use.</p> <p>Fuses are used to protect the circuit from overcurrent conditions. The fuse is installed in the circuit so that all the current in the circuit passes through it. In most fuses, the strip of metal is made of an alloy of tin and bismuth, which will melt and open the circuit when the current exceeds the rated capacity of the fuse. (PLT207) — FAA-H-8083-30</p>
8-14	1399	[C]	<p><i>Answer stem C and the explanation are changed to read:</i></p> <p>C—The number approved for that airplane described in the certificate holder’s manual.</p> <p>The number of spare fuses will be specified in the certificate holder’s manual. However, the regulatory requirements are as follows: there must be at least 50% for each fuse rating required, but not less than 1 for each rating.</p>
8-15	1866	[B]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1866. Thermal protectors are used to</p> <p>A—stop windshield heaters from melting the glass. B—protect motors from overheating. C—allow pitot heaters to melt any icing near the tube.</p> <p>A thermal protector, or switch, is used to protect a motor. It is designed to open the circuit automatically whenever the temperature of the motor becomes excessively high. The most common use for a thermal switch is to keep a motor from overheating. (PLT207) — FAA-H-8083-30</p>
8-16	1864	[B]	<p><i>A new question is added to read:</i></p> <p>ALL</p> <p>1864. A relay usually functions as a remote switch, whereas a solenoid</p> <p>A—must have AC power at all times to function. B—can actuate remote valves or switches. C—functions as a gang valve assembly.</p> <p>A solenoid can actuate remote valves or switches using AC or DC power. (PLT207) — FAA-H-8083-30</p>
9-6	1325	[C]	<p><i>The answer stems and explanation are changed to read:</i></p> <p>A—Refrigerant R-12 is nontoxic to the skin. B—Refrigerant R-12 changes to nitric acid if it comes in contact with water. C—Refrigerant R-12 will cause frostbite if it touches the skin.</p> <p>Refrigerant R-12 is a fluorinated hydrocarbon material; any Freon-12 dropped on the skin will result in frostbite. (S69) — JSAT</p>

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10-4	1518	[C]	<p><i>The answer stems and explanation are changed to read:</i></p> <p>A—Begin application as soon as rain begins, to form a barrier between the rain and the windshield. B—Apply rain repellent first, then activate the windshield wipers to spread the repellent. C—Rain repellent should not be used to clean a windshield.</p> <p>Liquid rain repellent is carried in pressurized cans and a measured amount is dispensed each time the push-button switch is depressed. The number of times the repellent is applied to the windshield is determined by the intensity of the rain. Rain repellent should not be used on a dry windshield since the chemical itself will reduce visibility through the glass. (T34) — Aircraft Basic Science</p>
10-5	1190	[A]	<p><i>The answer stems are changed to read:</i></p> <p>A—Visibly moist air and +45°F. B—Visibly moist air and +70°F. C—Relatively dry air and +32°F.</p>
10-5	1191		<i>The question is removed.</i>
10-6	1194	[B]	<p><i>The question is changed to read:</i></p> <p>1194. What is the lowest ambient temperature that engine ice is likely to form in air clear of visible moisture?</p>
10-6	1862	[C]	<p>A new question is added under “Wing Anti-Ice” to read:</p> <p>FEX 1862. A turbojet aircraft is equipped with bleed air heated inlet ducts on airfoil leading edges. When this type of anti-icing system is activated during flight, the flight engineer</p> <p>A—can ignore the turbine temperatures due to the extremely cold outside temperature. B—may need to reduce the power setting to maintain the turbine temperatures (EGT, ITT, etc.) C—will expect to see a decrease in turbine temperatures due to limited combustion air in the engines.</p> <p>Heated air for anti-icing is obtained by bleeding air from the engine compressor. Engine performance can be effected by depending on this air supply. (PLT263) — AC65-15A</p>
10-8	1505	[B]	<p><i>The question is changed to read:</i></p> <p>1505. Deicing fluid should be dispensed at what temperature?</p>
10-9	1051	[A]	<p><i>A new question is added to read:</i></p> <p>ALL 1051. Type 2 deicing/anti-icing fluids have a significantly</p> <p>A—longer holdover period than type 1 fluids. B—shorter holdover period than type 1 fluids. C—lower viscosity than type 1 fluids.</p> <p>Type 2 deicing/anti-icing fluids have a significantly longer holdover period than Type 1 fluids. (PLT108) — AC 120-58</p> <p>Answer (B) is incorrect because Type 2 fluids have a longer holdover period than type 1 fluids. Answer (C) is incorrect because Type 2 fluids have high to lower viscosity.</p>
11-9	1238	[A]	<p><i>The answer stems, answer, and explanation for incorrect answers are changed to read:</i></p> <p>A—Figure 14. B—Figure 11. C—Figure 10.</p> <p>Answer (B) is incorrect because illustration 11 means flagman directs pilot. Answer (C) is incorrect because illustration 10 means to slow down.</p>

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11-9	1239	[C]	<p><i>The answer stems, answer, and explanation for incorrect answers are changed to read:</i></p> <p>A—Figure 7. B—Figure 10. C—Figure 15.</p> <p>Answer (A) is incorrect because illustration 7 indicates come ahead. Answer (B) is incorrect because illustration 10 indicates slow down.</p>
12-5	1869	[A]	<p><i>A new question is added to read:</i></p> <p>ALL 1869. A thermocouple is</p> <p>A—a pair of dissimilar wires connected together. B—made to detect light. C—able to sense unsafe vibrations.</p> <p>A thermocouple is a circuit or connection of two unlike metals. (PLT207) — FAA-H-8083-30</p>
12-10	1871	[B]	<p><i>A new question is added to read:</i></p> <p>ALL 1871. What is the preferred fire extinguishing agent for installed fire extinguishing systems?</p> <p>A—Halon 1001. B—CO₂. C—Halon 1211.</p> <p>Carbon dioxide (CO₂) has been used for many years to extinguish flammable fluid fires and fires involving electrical equipment. It is noncombustible and does not react with most substances. (PLT212) — AC65-15</p>
12-13	1870	[C]	<p><i>A new question is added to read:</i></p> <p>ALL 1870. When should 100% oxygen be selected for flight deck masks?</p> <p>A—During all flight time above 10,000 feet. B—When first applying the mask. C—To correct a feeling of lack of oxygen.</p> <p>Oxygen should be set to 100% for the following purposes: (1) protection against exhaust gases or other poisonous gases in the aircraft, (2) to avoid the bends and chokes, and (3) to correct a feeling of lack of oxygen. (PLT326) — AC 65-15</p>
12-19	1236	[A]	<p><i>The answer stems, answer, and explanation for incorrect answers are changed to read:</i></p> <p>A—Vehicles or personnel should clear the taxiway. B—Aircraft in flight should exercise extreme caution. C—Aircraft on the ground should return to their starting point on the airport.</p> <p>Answer (B) is incorrect because this would be signaled with an alternating red and green light. Answer (C) is incorrect because this would be signaled with a flashing white light while on the ground.</p>
13-16	1725	[B]	<p><i>The answer stems are changed to read:</i></p> <p>A—18,860 pounds. B—19,210 pounds. C—22,280 pounds.</p>
13-25	1285	[A]	<p><i>The answer stems are changed to read:</i></p> <p>A—34 minutes. B—42 minutes. C—46 minutes.</p>