

- fuel systems (*Cont.*):  
 octane ratings, 129–130  
 overflow drains, 134–135  
 performance number system, 130  
 pressure-feed fuel systems, 132–133, **132**, 136–137  
 priming, 137  
 production of gasoline, 128  
 quality of fuel, 108  
 quantity indicators, 104, 106, 138  
 rich-lean setting, 79, 81–82, 97–98, 108, 130, 139, 143, 144–145, 147, 148  
 rubber bladder type fuel tanks, 134  
 safety when fueling, 137–138  
 sealant around fuel tanks, 133–134  
 single- vs. multi-engine fuel systems, 132–133, **133**  
 smoke from exhaust, 139  
 strainer for fuel, 136  
 surging in fuel flow, 133  
 switching tanks, 136–137  
 tanks, 133–135  
 thermal cracking process for gasoline, 129  
 tip tank fuel pumps, 127–128  
 troubleshooting, 138–139  
 vapor lock, 87, 108, 131, 139  
 vents, 134–135  
 water in fuel, 134, 135–136  
 wobble pumps, 136  
 fuel tanks, 133–135  
 fuel-air mixture, 79, 81–82, 97–98, 108, 130, 139, 143, 144–145, 147, 148  
 fuses, 178–179
- G-forces, airframe loading, 4–5  
 gapping spark plugs, 92–93  
 generators (*see* also alternators), 168–172  
 gimbal mounting, gyroscopic instruments, 44  
 glare rings in windows, 17  
 glass windows, 14–15  
 global positioning system (GPS), 25  
 governor, propellers, 206–208, **206**  
 graphic engine monitors, 98, **99**  
 gravity-feed fuel systems, 130–131, **131**  
 ground power unit (GPU), 153–154  
 grounding, 176  
 grounding and safety when fueling, 138  
 gyroscopic instruments, 39–51  
 attitude indicators, 39–41, **40**, 45, 47
- gyroscopic instruments (*Cont.*):  
 cleaning, 49  
 cross-checking indicators for safety, 50–51  
 directional gyro (DG), 52, 57  
 errors, acceptable ranges, 51  
 gimbal mounting, 44  
 handling gyros safely, 49–50  
 heading indicators, 41, **42**, 47, 50  
 pneumatic systems, 285, 286  
 precession, 44, 45, **48**, 288  
 preflight inspections, 45–49  
 pressure regulator settings, 50  
 preventive maintenance, 49–50  
 rigidity in space needed for, 44–45  
 safety precautions, 50–51  
 tumbling gyros, 51  
 turn indicators, 42–44, **43**, 49  
 vacuum-pump driven systems, 45, **46**, **47**, 50  
 venturi-driven systems, 44–45, **44**, 47, 49, 50
- head pressure, pitot tube, 36–37  
 heading indicators, 41, **42**  
 cross-checking indicators for safety, 50–51  
 drift or precession, random and magnetic, 41, 50  
 errors, acceptable ranges, 51  
 preflight inspections, 47, 49  
 setting, 41  
 slaving to magnetic sensors, 41  
 headings, cardinal, magnetic compass, 54  
 heat damage, 5  
 engines, 84  
 hydraulic fluid, 277–278  
 tires, 224–226  
 heating system, 239–243  
 carbon monoxide, 241  
 combustion heaters, 239, 241–242, **242**  
 exhaust-manifold heaters, 239, 240–241, **240**  
 preflight inspections, 242  
 temperature of cabin, 251  
 troubleshooting, 242–243
- hinges  
 airframe inspection, 4  
 corrosion, 7
- horizontally opposed engine, **79**  
 hydraulic fluid, 270–273  
 hydraulic systems, 269–279