Chapter 02: FBO Services

02. Fueling Operations

Provide safe, accurate, and efficient aircraft fueling services for both Jet A and 100LL aviation gasoline while maintaining quality control and regulatory compliance.

Purpose

This process establishes procedures for safe general aviation aircraft fueling operations to ensure proper fuel quality, accurate quantity delivery, and compliance with aviation fuel handling regulations while maintaining operational efficiency and client satisfaction. Our facility services aircraft requiring both Jet A fuel (turbine aircraft like King Air, Pilatus, TBM) and 100LL aviation gasoline (piston aircraft like Cessna 172, Piper Cherokee).

Roles and Responsibilities

Process Steps

Pre-Fueling Phase

- **Conduct safety assessment** - Inspect aircraft fuel system, verify fuel type requirements, and assess environmental conditions
- **Perform fuel quality testing** - Conduct water contamination, specific gravity, and visual inspection tests before dispensing
- **Prepare equipment and grounding** - Position fuel truck safely, establish grounding connections, and verify safety equipment operation
- **Verify fuel type compatibility** - Confirm aircraft requirements against fuel truck contents before connecting lines

Fueling Operations Phase

- **Connect fuel lines** - Attach fuel nozzle using proper techniques and verify secure connection before fuel flow
- **Monitor fuel flow** - Watch flow rate, quantity delivered, and check for leaks or irregularities during process
- **Verify fuel quantity** - Confirm delivered quantity matches client request and aircraft capacity using

multiple methods

- **Disconnect fuel lines safely** - Remove lines, drain residual fuel, and secure equipment following proper procedures

Post-Fueling Phase

- **Secure fuel caps** - Ensure all aircraft fuel caps are properly secured and torqued to manufacturer specifications
- **Fill documentation** - Fill fuel delivery ticket with quantity, type, aircraft information, and quality test results
- **Process billing transaction** - Enter transaction in billing system and provide detailed receipt to client
- **Update inventory records** - Record fuel usage and monitor levels for reorder requirements

Equipment Shutdown Phase

- **Shutdown fuel systems** - Shut down fuel truck systems and conduct post-operation inspection
- **Return equipment to storage** - Secure equipment in designated storage area following proper procedures
- **Inspect equipment condition** - Document any maintenance requirements or operational issues identified
- **Ensure environmental compliance** - Inspect area for spills and fill required environmental documentation

Process Mapping

Flowchart showing fuel quality testing, safety verification, fueling operation sequence, and post-operation procedures with decision points for fuel type verification and quality control.

Tools and Resources

- Fuel trucks (Jet A and 100LL) with calibrated meters and safety equipment
- Fuel quality testing equipment and testing supplies
- Grounding equipment and static electricity prevention devices
- Fuel delivery documentation and billing system access
- Spill response equipment and environmental protection materials
- Personal protective equipment and safety communication devices

Success Metrics

- **Completion Time:** Standard fueling operations completed within 20 minutes per aircraft.
- **Quality Standard:** 100% fuel quality compliance with zero contamination incidents.
- **Safety Standard:** Zero fuel spills or safety incidents during fueling operations.
- **Client Satisfaction:** 98% client satisfaction with fuel service accuracy and efficiency.

Common Issues and Solutions

- **Issue:** Fuel contamination detected during quality testing
- **Solution:** Isolate contaminated fuel supply, conduct additional testing, and coordinate with supplier for fuel replacement and system cleaning
- **Issue:** Training aircraft (Cessna 172) fuel system malfunction during fueling operation
- **Solution:** Stop fuel flow immediately, disconnect equipment safely, and coordinate with Part 61 flight school maintenance personnel for aircraft system inspection
- **Issue:** Fuel truck equipment malfunction during peak operations
- **Solution:** Implement backup fuel truck deployment and coordinate with maintenance team for immediate repair while continuing operations

Safety Considerations

- ⚠️ **WARNING**: Maintain proper grounding connections throughout fueling operations to prevent static electricity ignition
- ⚠️ **WARNING**: Never smoke or use open flames within 50 feet of fueling operations or fuel storage areas
- ⚡ **CAUTION**: Verify fuel type compatibility before connecting fuel lines to prevent aircraft fuel system contamination
- ℹ️ **NOTE**: Monitor weather conditions and suspend fueling during electrical storms or high wind conditions
- ✅ **BEST PRACTICE**: Conduct daily fuel quality testing and maintain detailed records for regulatory compliance

Regulatory References

- 14 CFR Part 139 - Airport Operating Requirements
- NFPA 407 - Standard for Aircraft Fuel Servicing

- EPA 40 CFR Part 280 - Underground Storage Tank Regulations
- OSHA 29 CFR 1910.106 - Flammable Liquids Standards
- FAA Advisory Circular AC 150/5230-4B - Aircraft Fuel Storage, Handling, Training, and Dispensing