



## Chapter 06: Safety and Compliance

# 03. Ground Handling Safety Protocols

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Establish ground handling safety protocols to protect personnel and aircraft during ramp operations.

## Roles and Responsibilities

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### Line Service Technician:

- Provide direct aircraft handling services
- Execute safety protocols during aircraft movements
- Document all services provided accurately
- Coordinate with ground support equipment
- Monitor safety compliance during operations

### Safety Officer:

- Monitor safety compliance across all operations
- Conduct safety investigations and reporting
- Coordinate safety training and certification
- Ensure regulatory safety compliance
- Authorize safety equipment and improvements

### Operations Leader:

- Oversee daily operations and coordinate between departments
- Authorize emergency response procedures and resource allocation
- Monitor safety compliance and operational excellence
- Coordinate scheduling across departments for operational coverage
- Review billing disputes and approve service adjustments
- Ensure regulatory compliance across all operations

## Process Steps

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### Pre-Operation Safety Phase

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- **Conduct safety briefing** - Review daily safety considerations, weather conditions, and special handling requirements

- **Inspect work area** - Check ramp area for debris, obstacles, fuel spills, or other hazards
- **Verify equipment condition** - Inspect ground support equipment for proper operation and safety features
- **Review aircraft information** - Confirm aircraft type, weight, special handling requirements, and operational status
- **Establish communication** - Ensure radio communication with pilots, tower, and ground control as required
- **Check personal protective equipment** - Verify all team members have required PPE including hearing protection and high-visibility vests

## Aircraft Approach and Positioning Phase

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- **Position marshalling equipment** - Place marshalling wands, cones, and safety equipment in designated positions
- **Establish visual contact** - Make eye contact with pilot and confirm marshalling signals are understood
- **Guide aircraft to parking** - Use standard marshalling signals to direct aircraft to designated parking position
- **Monitor clearances** - Ensure adequate clearance from other aircraft, equipment, and obstacles
- **Signal engine shutdown** - Use appropriate signals to indicate when aircraft should shut down engines
- **Verify parking brake** - Confirm pilot has set parking brake before approaching aircraft

## Ground Support Equipment Operation Phase

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- **Conduct pre-operation inspection** - Check hydraulic fluid levels, tire condition, and safety systems on tugs and equipment
- **Connect equipment safely** - Attach tow bars, ground power units, and other equipment using proper procedures
- **Test equipment operation** - Verify proper operation of hydraulic systems, brakes, and safety features
- **Maintain safe speeds** - Operate ground support equipment at appropriate speeds for conditions and aircraft type
- **Monitor aircraft stress** - Watch for signs of aircraft structural stress during towing or pushback operations
- **Use spotters** - Deploy spotters to monitor clearances and provide guidance during equipment operation

## Personnel Safety Phase

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- **Maintain situational awareness** - Stay alert to aircraft engines, propellers, and other moving equipment
- **Follow approach procedures** - Never approach aircraft from front or rear; use designated safe approach zones

- **Wear required PPE** - Use hearing protection, high-visibility clothing, and safety equipment as required
- **Communicate clearly** - Use hand signals, radios, or intercom systems to maintain clear communication
- **Avoid hazardous areas** - Stay clear of jet blast areas, propeller arcs, and other dangerous zones
- **Report unsafe conditions** - Immediately report any unsafe conditions or equipment malfunctions

## Aircraft Securing Phase

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- **Install wheel chocks** - Place wheel chocks properly to prevent aircraft movement
- **Connect ground power** - Attach ground power units if requested by pilot or maintenance personnel
- **Secure loose items** - Ensure all ground support equipment and materials are properly secured
- **Complete inspection** - Check aircraft and surrounding area for damage, leaks, or safety hazards
- **Document services** - Record ground handling services provided and any observations or issues
- **Coordinate next services** - Communicate with fueling, maintenance, or other service teams as needed

## Equipment Shutdown and Storage Phase

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- **Shut down equipment properly** - Follow manufacturer procedures for shutting down ground support equipment
- **Inspect for damage** - Check equipment for damage, leaks, or wear that requires maintenance attention
- **Clean equipment** - Remove debris and contamination from equipment surfaces and components
- **Return to storage** - Park equipment in designated storage areas with proper security measures
- **Complete maintenance logs** - Document equipment operation hours and any maintenance requirements
- **Report deficiencies** - Notify maintenance personnel of any equipment issues requiring attention

## Tools and Resources

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### Ground Support Equipment:

- Aircraft tugs and tow bars
- Ground power units and air start units
- Wheel chocks and tie-down equipment
- Marshalling wands and safety cones

### Safety Equipment:

- Personal protective equipment (PPE)
- Two-way radios and communication systems
- Fire extinguishers and spill response materials

- First aid kits and emergency contact information

**Documentation:**

- Ground handling service records
- Equipment inspection checklists
- Safety incident reporting forms
- Aircraft damage inspection forms

## Common Issues and Solutions

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- **Issue:** Communication breakdown between ground crew and flight crew
- **Solution:** Establish clear communication protocols, use standard hand signals, and ensure backup communication methods are available

**Issue:** Ground support equipment malfunction during operations

**Solution:** Conduct thorough pre-operation inspections, maintain backup equipment availability, and implement immediate equipment shutdown procedures

**Issue:** Personnel entering hazardous areas around aircraft

**Solution:** Provide enhanced safety training, use physical barriers when possible, and implement buddy system for high-risk operations

## Regulatory References

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- **14 CFR Part 139.319** - Aircraft rescue and firefighting: Operational requirements
- **29 CFR 1910.178** - Powered industrial trucks operation and maintenance
- **FAA Advisory Circular AC 00-34** - Aircraft Ground Handling and Servicing
- **OSHA 29 CFR 1926.95** - Personal protective equipment requirements
- **NFPA 407** - Standard for Aircraft Fuel Servicing (ground handling provisions)
- **SAE ARP 1247** - Aircraft Ground Support Equipment