BY ORDER OF THE COMMANDER
42D AIR BASE WING (AETC)

MAXWELL AFB INSTRUCTION 21-102

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Maintenance

CRASHED DAMAGED OR DISABLED AIRCRAFT RECOVERY

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This instruction implements AFI 21-101, *Aircraft and Equipment Maintenance Management*, by outlining responsibilities and procedures for the Crashed, Damaged or Disabled Aircraft Recovery (CDDAR) program. Refer recommended changes and/or corrections to this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*, through your chain of command. This publication may not be supplemented or further implemented/extended. Waivers are not authorized. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This Instruction applies to the 42d Air Base Wing and the 908th Airlift Wing (AFRC); it does not apply to the ANG.

SUMMARY OF CHANGES

This publication is completely rewritten and should be reviewed in its entirety. This rewrite: reorganizes information; clarifies and expands responsibilities; further defines training requirements; adds guidance on the CDDAR Team; adds guidance on Risk Management; expands guidance on equipment; adds guidance on aircraft removal procedures; implements Recovery Team training; and adds other miscellaneous information/requirements.

Chapter 1

GENERAL RESPONSIBILITIES

1.1. Overview. The Commander, 42d Operations Support Squadron (42 OSS), is responsible for overseeing the Crashed, Damaged or Disabled Aircraft Recovery (CDDAR) program at Maxwell AFB. The CDDAR program applies to all USAF host and tenant organizations and is designed to recover crashed, damaged, or disabled aircraft in a minimum time consistent with the following considerations:

1.1.1. Requirement to open the runway for operational use.

1.1.2. Prevention of secondary damage to the aircraft.

1.1.3. Preservation of evidence for mishap or accident investigations IAW AFI 91-202, *The US Air Force Mishap Prevention Program*, and AFI 91-204, *Safety Investigations and Reports*.

1.1.4. 42 ABW Plan 10-2, *Comprehensive Emergency Management Plan (CEMP)*, provides procedures for tasked organizations in the event of an actual aircraft mishap.

1.2. CDDAR Recommended Composition.

1.2.1. The primary CDDAR team members are from the Base Operating Support Services (BOS) Transient Alert office, and the 908th Maintenance Squadron (908 MXS) set as augmentees. Management of the primary CDDAR equipment will be the Transient Alert section. The 908 MXS manages Mission Design Series (MDS)-specific (C-130) aircraft equipment used for CDDAR. The CDDAR team should include personnel assigned to the repair and reclamation section. Duties will include management of crash recovery equipment and the removal of crash/damaged aircraft IAW AFI 21-101, *Aircraft and Equipment Maintenance Management*.

1.2.2. Augmentee members should consist of personnel that assist the CDDAR Team for the purpose of identifying system components and advising the team chief on system hazards. They may be required to know basic recovery methods and assist as a general labor source.

1.2.3. When base-assigned C-130 aircraft are involved, augmentee members should be part of the 908 MXS repair and reclamation section. Maintenance crew chiefs, and other maintenance personnel may be needed for technical advice.

1.2.4. Specialized teams are personnel qualified with specific personal protective equipment to secure and contain various hazards associated with recovery operations. These personnel can be identified locally to meet situational needs (i.e.; hydrazine team, composites hazard team).

1.3. Agencies Involved. Numerous organizations are involved in planning, managing, and performing recovery operations. 42 ABW Plan 10-2, *Comprehensive Emergency Management Plan*, has a listing of the organizations.

1.3.1. The nearest military Explosive Ordnance Disposal (EOD) support is available from the US Army, Fort Benning, GA, DSN: 835-4974 or 835-4154.

1.3.2. For nuclear weapons/components, EOD support is available from Barksdale AFB, LA, DSN: 781-1020 or 781-3765.

1.3.3. Host/Tenant Base CDDAR Responsibilities. Each host base has overall responsibility for recovery of host/tenant crashed/disabled aircraft. Since tenant units are responsible for the condition/repair of their aircraft, tenant units must be actively involved in training to assist host base recovery operations during real world responses. Technical expertise, technical data, MDS-unique tools/special equipment, and airframe/system familiarization are the primary contributions tenant units make to the host CDDAR program. Host units must ensure they are capable to provide and support recovery operations for all base assigned aircraft, to include tenant aircraft. Tenant units are required to participate in host training exercises and equipment inventories. Tenant units must coordinate with the host for CDDAR support, training, exercises, and equipment inventories. Develop Support Agreements (SA) to document requirements.

1.4. Recovery Program Responsibilities. The 42 ABW/CC is responsible for implementing policy, plans and agreements to ensure compliance with established recovery programs, and ensuring affected organizations publish a unit instruction containing specific responsibilities and procedures for CDDAR.

1.4.1. 908th Maintenance Group (908 MXG) Responsibilities. The responsibilities and relationship between 42 OSS Transient Alert and 908 MXG is addressed in 908 MXG MOI 21-5, *Crashed, Disabled, Damaged Aircraft Recovery.*

1.4.1.1. Coordinate with 42 OSS on the contents and responsibilities addressed in this instruction.

1.4.1.2. Establish numbers and positions of team members assigned with the 42 OSS Transient Alert CDDAR team chief

1.4.1.3. Provide C-130 specific tools and equipment in support of CDDAR operations.

1.4.1.4. Assist host recovery team with technical expertise, Technical Data, and C-130 aircraft MDS specific tools/equipment.

1.4.1.5. Provide a Point of Contact (POC) for Support Agreements/Memorandums of Agreement in relation to supporting the CDDAR program

1.4.1.6. Coordinate with 42 OSS Transient Alert on scheduling of annual training exercises.

1.4.1.7. Assist 42 OSS Transient Alert in identifying and inventory of C-130 specific equipment on hand.

1.4.1.8. Assist 42 OSS Transient Alert with Weight and Balance information of assigned aircraft

1.4.1.9. Provide inputs to the host CDDAR training plan.

1.4.1.10. Assist in preparation of lift exercises with team members, equipment and tools as needed.

1.5. CDDAR Team Chief (42 OSS/Transient Maintenance Chief):

1.5.1. Implements the requirements of the CDDAR program.

1.5.2. Assigns specific CDDAR positions to the CDDAR team (i.e., Team Chief, member).

1.5.3. Assigns a course code for crash recovery training.

1.5.4. Reviews support agreements and the base disaster response plan annually, and provide inputs for changes as required.

1.5.5. Ensures CDDAR procedures are coordinated with Fire Department, 42 ABW Safety Office (42 ABW/SE), Base Civil Engineer, EOD, 42d Security Forces Squadron (42 SFS), 42 AMDS/Bioenvironmental Egineering, Airfield Manager, and on/off base agencies as required.

1.5.6. Ensures sufficient personnel/teams are trained to support CDDAR operations (up to 24 hours) to include:

1.5.6.1. Familiarization of basic equipment operation (i.e., light carts, generators, etc.).

1.5.6.2. Familiarization with unique characteristics/hazards/materials for assigned aircraft (i.e., C-130 ballast depleted uranium, explosive loaded aircraft, chaff/flare).

1.5.6.3. Ensures proper use of personnel protection equipment (PPE) as determined by the technical data, ABW/SE and/or the BOS Contractor Health and Safety Officer.

1.5.6.4. Ensures special qualifications for personnel are identified and documented (i.e., towing, jacking control console).

1.5.6.5. Ensures adequate tools and support equipment for recovery operations are serviceable and available.

1.5.6.6. Conducts annual crash recovery training and participates in base training exercises.

1.5.6.7. Ensures establishment of support and recall procedures for after-hour operations.

1.5.6.8. Coordinates with 908 MXG Quality Assurance (QA) when weight and balance center of gravity conditions are unknown on base-assigned C-130 aircraft.

1.5.6.9. Coordinates with Base Transportation and Base Civil Engineer sections to identify vehicle/equipment requirements and 24-hour availability. Vehicle and equipment items may include:

1.5.6.9.1. General purpose truck.

1.5.6.9.2. All terrain forklift.

1.5.6.9.3. Bulldozer.

1.5.6.9.4. Crane (20 to 50 ton as applicable).

1.5.6.9.5. Tractor to pull crash recovery trailer to crash site.

1.5.6.9.6. Flatbed trailer and tractor for recovery operations.

1.5.6.9.7. Crash trailer with equipment items.

1.5.6.9.8. Aircraft tow vehicle.

1.5.6.9.9. Tow bars (C-130 specific and universal).

1.5.6.9.10. Aircraft jacks.

1.5.7. Ensures after-hours recall roster is available to the Command Post.

1.6. Inspection and Inventory. 42 OSS/Transient Alert and 908 MXG are responsible for inspecting their respective crash recovery equipment to include: airbags, control consoles, and other equipment items before and after each exercise or use. Periodic inspections on equipment shall be conducted as established by Technical Order (TO) or, as a minimum, annually.

1.6.1. Conduct an inventory of all crash recovery equipment annually. Document inspections and inventories in Maintenance Information System (MIS) and on the crash recovery master inventory log. The Air Force Technical Order (AFTO) Form 244, *Industrial/Support Equipment Record,* or Major Command (MAJCOM) approved form will be used to document large equipment items (airbag, manifold, etc.).

1.6.2. Inform Airfield Operations Management in writing of equipment shortages/serviceability that hinders CDDAR support. Maintain a current listing of vendors/suppliers in the local area that lease heavy equipment, vehicles or other items that are not available on base and may be required.

1.7. Training Requirements.

1.7.1. All CDDAR team members must be trained in recovery procedures according to this instruction, other applicable Air Force and MAJCOM directives, and flight/element developed training guides.

1.7.2. Initial training shall be comprised of both academic and hands-on training/exercises. In accordance with AFI 21-101, AETC Sup 1, *Aircraft and Equipment Maintenance Management,* use tethering lines during all hoisting operations. When using a hoist and sling, apply enough tension to sling to ensure proper sling positioning (fore and aft). Do not lift the aircraft wheels off the ground.

1.7.3. After initial training of both hands-on and academic training/exercises, all crash recovery team members shall receive annual refresher training.

1.7.4. Chapter 6 of this instruction, addresses additional training items.

1.8. Recall Procedures. The CCDAR Team Chief provides a telephone recall roster to the 42 ABW/CP and 908 AW/CP for all CCDAR personnel. The Command Post will contact the CDDAR Team Chief during the event of a recall, to initiate a pyramid recall. Team members will have 60 minutes to respond.

Chapter 2

CDDAR TEAM

2.1. Purpose. The purpose of this guide is to assist leaders and members of the CDDAR team, to plan for and conduct successful recovery operations. It should promote thoughts and ideas for various techniques, which can be used. Any effective variations of these techniques, new techniques developed, or available new equipment identified should be submitted to MAJCOM for evaluation.

2.2. Mishap/Accident Investigations. Virtually every aircraft that requires recovery has been involved in a mishap. Certain conditions require the investigating commander to convene an accident investigation. CDDAR leaders and planners should be familiar with these procedures and know the precedence of such investigations over recovery efforts. 42 ABW Legal Office (42 ABW/JA) with 42 ABW/SE may provide assistance regarding the effects of these investigations on recovery operations.

2.3. Responsibilities. When a mishap occurs on or near a base, the nearest Air Force Base Commander is responsible for providing Crash, Fire-fighting and Rescue (CFR) and EOD support. He or she also must secure and preserve any evidence or wreckage. Before beginning any recovery operation, the CDDAR team chief must obtain approval from the incident commander (IC), the EOD team chief (when applicable) and the investigating commander.

2.4. Urgency of Recovery. Chapter 5 covers methods of aircraft removal for truly urgent situations. This type of recovery places both assets and personnel at risk and is avoided except during times of immediacy or war.

2.5. Recovery. Even normal safe recovery procedures can be executed at an increased pace if conditions warrant. In such cases, techniques may be used that risk additional damage to the aircraft. Consider the following factors to determine how great the need is for rapid recovery. The IC will determine urgency.

2.5.1. Availability of alternate taxiways.

2.5.2. Availability of alternate airports.

2.5.3. Position of disabled aircraft relative to aircraft movement areas.

2.5.4. Cost of diversions/loss of operations.

2.5.5. Military alert commitments.

Chapter 3

RISK MANAGEMENT (RM)

3.1. Situation Evaluation. The first task at an aircraft recovery site is to gather information and evaluate the situation. The initial response team will be able to gather much of this data and initiate requests for additional information from appropriate sources. This section provides sample checklists for gathering essential data. After gathering all necessary information, it should be used to accomplish a risk assessment, using Operational Risk Management (ORM).

3.1.1. Safety, definitions, purpose, scope, and using ORM is the common sense approach to making calculated decisions on human material and environmental factors. It enables those in charge to maximize operational capabilities while minimizing risks at all levels, preserving assets, and safeguarding health and welfare. The most important aspect of ORM is to accept no unnecessary risk.

3.2. Environmental, Safety, and Health Hazards. The key for developing a safe and effective CDDAR program is communication and coordination. The CDDAR office of primary responsibility (OPR) must ensure the BOS Contractor Health and Safety Officer is consulted and directly involved in determining personnel health hazards, training required, and appropriate levels of PPE for CDDAR team members under their supervision (i.e. contracted employees). Bioenvironmental Engineering (BE) is responsible for determining personnel health hazards, training required, and appropriate levels of PPE for government augmentees (i.e. military and civil service employees). For contractor personnel, 42 CES/CEIE is responsible to contact the IC to obtain aircraft specific information; if other than 908 AW aircraft are involved.

3.2.1. There are two distinct phases of an aircraft mishap--initial response and recovery. Initial response teams face the probability of an aircraft fire. As the composite material burns, gases, vapors and solid particles release into the smoke plume. Recovery team members may be exposed to fibers and respirable dusts as aircraft parts are moved, modified by cutting, breaking, twisting, or hammering. Personnel tasked to participate in crash or post-crash response, recovery, maintenance, and/or cleanup operations must be aware of and briefed on all possible health issues involved. Units must ensure local policies and procedures for handling crash damaged composites are addressed; to include training and PPE. The BOS Transient Alert should have the following Personal Protective Equipment on hand:

3.2.1.1. A minimum of two full-facepiece respirators (North 5400 or other approved by ESH)

3.2.1.2. Organic and HEPA filters

3.2.1.3. Tyvek coveralls

3.2.1.4. Steel toe boots

3.2.1.5. Ear muffs 29 dBA NRR or greater

3.2.1.6. Hard hats, Type 1, Class A

3.2.1.7. Goggles

3.2.1.8. Leather gloves

3.2.1.9. Nitrile or latex gloves

3.2.1.10. Faceshield

3.2.2. The BOS Transient Alert office must develop a respiratory protection program for proper respirator use IAW Department of Labor, Occupational Safety and Health Administration (OSHA) standard Title 29, Code of Federal Regulations (CFR), Part 1910.134, *Respiratory Protection*, current edition (i.e. 29 CFR 1910.134). As determined by BE and based on government personnel exposure potential, 42 ABW organizations involved in CDDAR operations must develop a respiratory protection program for proper respirator use IAW AFI 48-137, *Respiratory Protection Program.*

Chapter 4

EQUIPMENT

4.1. Overall Equipment Planning. This chapter deals with equipment commonly used for Aircraft Recovery. The CDDAR team will be cognizant of the following requirements:

4.1.1. What equipment is available (inventory).

4.1.2. The types and capacities of available equipment (cranes, dozers, etc.).

4.1.3. Contractual arrangements necessary for additional equipment required (Government Purchase Card, base contracting, agreements, etc.).

4.2. Other Factors. Other factors to consider are:

4.2.1. Terrain in the region of responsibilities (woods, hills, water, urban areas, etc.).

4.2.2. Climate extremes.

4.2.3. Type and frequency of flying operations.

4.3. Crash Recovery Trailer. Standard equipment in the crash recovery trailer should include:

4.3.1. Slings, dollies, tow bridles, etc. for aircraft assigned to that base.

4.3.2. Ropes, cables, pulleys, chains, etc.

4.3.3. Empty sandbags, timbers, shoring material.

4.3.4. Pneumatic lifting bags, hoses, control consoles.

4.3.5. Plywood sheets.

4.3.6. Steel plates, pierced steel planking.

4.3.7. Picks, shovels, sledgehammers, crowbars.

4.3.8. Grounding rod and grounding cables.

4.3.9. Gloves, coveralls, hard-hats, body harness, hearing protectors, goggles, etc.

4.3.10. Fluid sample kits for fuel, oil, and hydraulic fluid.

4.3.11. Communication headsets and ground cords.

4.3.12. First aid kits.

4.3.13. Main landing gear (MLG) cradle (for fighter aircraft).

4.3.14. Step ladders and step stands.

4.4. Diversified Base Assets. Aircraft recoveries will generally require assets from numerous base organizations. Aircraft maintenance shops provide both specialized equipment and personnel trained in its use. Aerospace Ground Equipment (AGE) shops will provide support equipment. Organizations such as Civil Engineering frequently have items and equipment necessary for recovery operations.

4.5. Common Support Items. Equipment collected from various base locations may include:

4.5.1. Maintenance stands and other non-powered AGE.

4.5.2. Air compressors, generators, lighting, heaters, air conditioners, and other powered AGE.

4.5.3. Mobile Command Post.

4.5.4. Communications equipment.

4.5.5. Earth moving equipment.

4.5.6. Tow vehicles, de-fueling trucks, etc.

4.5.7. Mechanics tools.

4.5.8. Sand, gravel, cement, timbers, lumber.

4.5.9. Cables, chains, hooks, clamps, hand winches.

4.5.10. Metal cutting saws, bolt cutters.

4.5.11. Cranes, winch trucks.

4.5.12. Food, water, coffee, etc. (for recovery personnel).

4.5.13. Standby medical and fire support.

4.5.14. Portable temporary shelters.

4.6. Recovery Teams. Commanders will consider recovery teams to be emergency operations and will allow recovery crews access to disaster preparedness and other emergency assets. The CDDAR team chief will know what is available from such stores. CE readiness will be contacted and advance arrangements made to obtain their assets. Emergency stocks may include mobility assets such as:

4.6.1. Hand-held radios.

4.6.2. Mobile communications vans.

4.7. Local Contractor Equipment. CDDAR efforts commonly require items and/or equipment not available on base. Due to the serious nature of recovery work, funding becomes available to purchase or rent local equipment. Frequently required items include:

4.7.1. Large cranes (with properly trained operators).

4.7.2. Earth moving equipment.

4.7.3. Timbers, gravel, etc. (in large quantities).

Chapter 5

AIRCRAFT REMOVAL

5.1. Urgent Removal. Depending on the circumstance, a crash, damaged or disabled aircraft may require immediate removal. Accomplish this despite certain additional damage to the aircraft. NOTE: Urgent removal scenarios are not usually applicable to most stateside bases.

5.1.1. An aircraft removed by conventional methods (slings, bags, jacks) will require less time to complete damage repairs in comparison to one removed by urgent removal techniques (dozer). This difference in repair times may justify use of conventional recovery methods despite increased recovery times. Joint decisions are required by the owning Command of the aircraft and host-base Command.

5.2. Evaluation of Damage: Unless the recovery team chief possesses significant knowledge regarding the aircraft type, it is not likely that an accurate damage evaluation can be made. When possible, type-experienced maintenance personnel should be called to assist in removals. Thus, damage to critical parts may be avoided.

5.3. Pulling vs. Pushing: There usually is not a need to push an aircraft from a runway or operational area; pulling is always preferable. Some advantages are as follows:

5.3.1. Safety: Accomplish pulling from a safe distance away from the aircraft. In urgent removal situations, there will likely be unexploded ordnance, fuel fires, dangerous chemicals and/or other hazards to personnel. Conduct removal operations away from the aircraft if possible.

5.3.2. Traction: Position vehicles used to pull the aircraft where traction is better than that around the aircraft. Pulling may be done by winch from anchored positions.

5.3.3. Damage: Pulling usually results in less airframe damage than pushing.

5.4. Pulling Techniques: Winching is a preferred method since it is more controllable. If an aircraft must be pulled on an arcing path, winching from changing anchor positions is preferred if terrain allows. Pulling is broken into two parts: cable attachment and airframe sliding procedures. Sliding procedures applicable to pushing as well as pulling airframes are generally illustrated in applicable aircraft dash three aircraft structural technical order manuals.

5.5. Cable Attachment: Structural manuals list cable attachment points for various aircraft types in order to accomplish removal. Generally, landing gear trunnion points, landing gear, major bulkheads, longerons and wing spar attachment points are used. It may be faster and safer to use heavy chains with hooks to attach cables with prepared loops to the airframe.

5.5.1. Make attachment at the lowest possible point so that pulling results in slight upward lift of the airframe. Attachment is also to be at the airframe points closest to the pulling vehicles to avoid downward loading on forward Center of Gravity (CG) points.

5.6. Recovery Methods. Aircraft recovery usually involves seven general steps. The extent of these steps will depend upon the size and type of aircraft and the general situation. Recovery team members must be familiar with all parts of this section and should consider which techniques are most likely used at their location. Recovery steps:

5.6.1. Overall assessment, analysis, planning, and briefings.

5.6.2. Alteration of weight and CG.

5.6.3. Functional and structural assessment of the aircraft.

5.6.4. Lifting the aircraft.

5.6.5. Providing portability to the airframe.

5.6.6. Lowering the aircraft.

5.6.7. Movement of the aircraft.

5.7. Briefings. As soon as the initial planning step is complete, the CCDAR Team Chief will conduct a briefing for all involved parties. Comments and critique are encouraged to allow pooling of everyone's expertise. The briefing should address the next step (alteration of weight and CG) in detail. Brief in general terms a tentative plan to accomplish the remaining recovery steps. This will allow all involved to begin thinking of various possible hazards and ways to minimize them. Detailed briefings are best broken down into several distinct tasks and one person appointed responsible for each task. Each task leader must fully understand their responsibilities and how they interface with others. Task leaders will brief all other personnel involved in their tasks.

5.8. Briefing Content. Briefings should cover the following topics:

5.8.1. The tasks to be accomplished (what).

5.8.2. The intended purpose of each task (why).

5.8.3. The sequence of the tasks (when).

5.8.4. Responsibility for each task (whom).

5.8.5. Coordination of the task (how).

5.8.6. Any known hazards involved.

5.8.7. Evacuation procedures.

5.9. Evacuation Procedures. Due to the many unknown (as well as known) hazards involved in an aircraft recovery, an evacuation plan is essential. Every individual involved in the recovery operation must be informed of evacuation procedures. During extended recovery efforts, consider shift changes and the arrival of various specialists. The CDDAR team chief, to ensure that everyone entering the security perimeter understands evacuation procedures, should establish a planned procedure.

5.9.1. Three key elements of an evacuation plan are:

5.9.1.1. Alarm. Alarm activation if a serious hazard is seen.

5.9.1.2. Recognition of Alarm**.** What the alarm/signal will be for recognition and response purposes.

5.9.1.3. Response. What the appropriate response will be upon receiving the alarm/signal.

5.10. Evacuation Signals. Noise level is the primary factor to consider in devising an evacuation signal. Recovery operations are frequently very noisy. Often nearby aircraft operations are still ongoing. Consider visual, as well as audio warnings. Also, consider portable air horns, large spotlights, whistles, and megaphones as signals. Consider the frequency of the ambient noise and try to use audio signals with different and/or varying frequencies.

5.11. Alteration of Weight and CG. Generally reduce the weight as much as possible, prior to lifting an aircraft, especially large aircraft. In some cases, adding or shifting weight to selected points may aid recovery by changing the CG.

5.11.1. Before beginning any weight or CG changes, the existing aircraft weight and CG must be determined as closely as possible. Flight crewmembers, crew chiefs, and aircraft tech orders are all good sources for this data. The applicable aircraft "-3" structural repair instruction contains additional data.

5.12. CG Transfer. In the event that only a portion of the aircraft must be lifted (e.g. single point landing gear collapse), much work can be saved by shifting the aircraft CG away from the portion to be lifted. This may actually be more beneficial than reducing the aircraft weight. For example, if the nose wheel collapsed, shifting weight (and thus CG) rearward can reduce effective nose weight until one man can lift it. Take several precautions to control such operations and avoid overstressing the airframe or causing additional damage.

5.12.1. The following examples are methods of CG transfer:

5.12.1.1. CG movement by fuel transfer.

5.12.1.2. CG movement by cargo transfer.

5.12.1.3. CG movement by weight addition.

5.12.1.4. CG movement by weight reduction.

5.12.1.5. Weight reduction for lifting.

5.12.1.6. Munitions removal.

5.12.1.7. Fuel removal.

5.12.1.8. Engine removal.

5.12.1.9. Component removal.

Chapter 6

TRAINING

6.1. Aircraft Recovery Training General. The transient alert section will establish a training program. This program will require the identifying of essential personnel to implement procedures outlined in AFI 21-101, paragraph 14.10.7 and local directives. Training objectives will incorporate knowledge, understanding, and hands-on usage. Experience levels will be at the five and seven level or contractor equivalent, utilizing classroom and application training in coordination with the 908 AW CDDAR team chief.

6.1.1. Levels of training as follows:

6.1.1.1. Five Level – train and qualify personnel in responsibilities, procedures, technical references, and equipment to a knowledge or understanding level needed for recovery methods.

6.1.1.2. Seven Level – operates, explains, understands, and can instruct basic task procedures and equipment used in recovery methods.

6.2. Training Requirements. Training requirements may differ from unit to weapon system. Each unit must use its own judgment to identify conditions particular to assigned aircraft. The Transient Alert section will focus on the C-130 airframe.

6.2.1. Classroom instruction will use this CDDAR guide incorporating theory and understanding of crash recovery operations.

6.2.2. Hands-on: Training that requires individual user knowledge and application of equipment and tools used. Accomplish training locally, and consider testing in conjunction with training hulks if available.

6.3. Recovery Team Qualifications. All team members must be qualified in basic CDDAR operations. Record all qualifications in Maintenance Information Systems (MIS) as applicable.

6.3.1. Qualification Training Requirements. All team members must be trained and qualified in recovery procedures IAW AFI 21-101, Mission Design Series (MDS) specific technical data, and applicable unit-developed training guide.

6.3.2. All recovery team members must receive annual qualification training following initial training comprised of both academic and hands on training/exercises. Ensure documentation of all qualification training.

6.4. Scenarios. Scenarios are ideal training situations. They enhance real world recovery requirements. The CDDAR team chief should develop scenarios and incorporate them with hands-on training.

6.5. Recovery Team Qualification Training. IAW AFI 21-101, all recovery team members must receive initial training comprised of both academic and hands on training/exercises. IAW AFI 21-101, AETC Sup 1, use-tethering lines during all hoisting operations. When using a hoist and sling, apply enough tension to sling to ensure proper sling positioning (fore and aft). Accomplish aircraft lifting exercises by using a unit owned aircraft, utilizing training hulks, or participating with other organizations possessing training assets. Document all training in IMDS.

Do not lift the aircraft wheels off the ground. NOTE: The actual recovery of an aircraft performed by a unit satisfies the annual requirement when it meets all aspects of a crash recovery exercise and, for 42 OSS/AOT was evaluated by the 42 OSS/MAQ, Contracting Officer's Representative.

Chapter 7

MISCELLANEOUS

7.1. Briefings. The CDDAR team chief will accomplish briefings prior to training on actual aircraft recovery operations. When hazards cannot be eliminated, consider risk management (RM) analysis. Below are suggested topics:

7.1.1. Personal issues, potential mishap or hazards including PPE.

7.1.2. Can workers be struck by or contacted by anything?

7.1.3. Can workers strike against or be exposed to any item that can cause injury?

7.1.4. Can workers be caught in or between anything?

7.1.5. Can workers fall?

7.1.6. Can workers overexert?

7.1.7. Are workers required to do repetitive lifting or heavy lifting?

7.1.8. Are workers exposed to hazards such as toxic gases, chemicals, radiation, or noise?

7.2. Safety Assessments. The following are additional personnel and safety assessments pertaining to aircraft recovery:

7.2.1. Are workers wearing required PPE (safety toe shoes, hearing protection, gloves, and safety goggles)?

7.2.2. Are workers aware of avoiding suspended loads when lifting items?

7.2.3. Are workers aware of lifting cable limitations?

7.2.4. Is there on scene supervision assessing the risks in climbing operations?

7.2.5. Is the crash site area assessed for slip and fall potential?

7.3. Environmental. Aircraft crashes may involve issues and situations that have both before and after environmental repercussions. Survey assessment and correction of initial environmental impacts need to be resolved immediately, such as fluid or gas leakage, cargo spillage and physical damage to include fire. These items should already be analyzed, but may require technical expertise from the recovery team specialties or base functions. Additional information may need to be solicited from 42 CES/CEV, BE and 42 ABW/SE prior to entering a recovery site. Further, the Safety Investigation Board (if convened) will be intimately involved in any mishap and no recovery operation will proceed until direction is given. NOTE: Environmental issues are enforced by federal, state, and local laws. Proper authority must be involved prior to closure of any aircraft incident.

ANDREA D. TULLOS, Col, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*, 15 June 2012

AFI 91-204, *Safety Investigations and Reports*, 12 February 2014

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Abbreviations and Acronyms

42 ABW—42d Air Base Wing

908 AW—908th Airlift Wing

AGE—Aerospace Ground Equipment

AFTO—Air Force Technical Order

BE—Bioenvironmental Engineering

BOS—Base Operations Support

CDDAR—Crashed, Damaged or Disabled Aircraft Recovery

CE—Civil Engineering

CFETP—Career Field Education and Training Plan

CFR—Crash, Fire-fighting and Rescue

CG—Center of Gravity

CP—Command Post

EOD—Explosive Ordnance Disposal

IC—Incident Commander

JA—Legal Office

MAJCOM—Major Command

MDS—Mission Design Series

MIS—Maintenance Information Systems

MLG—Main landing gear

MTF—Maintenance Training Flight

MXG—Maintnenance Group

MXS—Maintenance Squadron

OPR—Office of Primary Responsibility

ORM—Operational Risk Management

OSS—Operations Support Squadron

RM—Risk Management

POC—Point of Contact

PPE—Personal Protective Equipment

QA—Quality Assurance

RM—Risk Management

SE—Wing Safety Office

Attachment 2

CDDAR DATA WORKSHEET (SAMPLE)

Figure A2.1. CDDAR Data Worksheet (Sample).

AIRCRAFT INFORMATION			
1.	**Type and Model**	**Date**	**Time**
2.	**Tail Number**		
3.	**Empty Weight**		
4.	**Total Fuel Load (current)**		
5.	**Fuel Load by Tank**		
6.	**Cargo Load/Munitions**		
7.	**Classified Item/ Marking**		
8.	**Major Structure Condition**		
9.	**Landing Gear Intact?**		
SITE INFORMATION			
1.	**General Location**		
2.	**Exact Position**		
3.	**Type Terrain**		
4.	**Temperature**		
5.	**Weather (Rain, Fog, etc.)**		
6.	**Wind Speed & Direction**		
7.	**Weather Forecast**		
8.	**Identification of Any Hazards**		

Attachment 3

SAMPLE HAZARDS CHECKLIST

Figure A3.1. Sample Hazards Checklist.

TYPE HAZARD	YES	NO	NA	COMMENTS
Nuclear Weapons				
Conventional Weapons				
Bombs				
Missiles				
Ammunition				
Fuel				
Toxic Chemicals				
High Pressure Cylinders				
Ejection Seats				
Ejection Hatches				
Corrosive Agents				
Batteries				
Damaged Tires				
Personnel Hazards (TO 00-105E-9)				
Composites				
ADDITIONAL HAZARDS (LIST)				
BOS identified (if any)				