BY ORDER OF THE COMMANDER
439TH AIRLIFT WING

439 AIRLIFT WING INSTRUCTION
21-108

5 DECEMBER 2019

Maintenance

CRASH, DAMAGED, DISABLED AIRCRAFT RECOVERY

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(Col David C. Post)

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This instruction implements Air Force Policy Directive (AFPD) 21-1, *Maintenance of Military Materiel*. This instruction extends the guidance of Air Force Instruction (AFI) 21- 101_AFRC SUP 1, *Aircraft and Equipment Maintenance Management*, and 439th Airlift Wing Installation Emergency Management Plan (IEMP) 10-2. This instruction establishes individual responsibilities, restrictions, and documentation requirements for responsibilities and procedures necessary for Crash Damaged/Disabled Aircraft Recovery (CDDAR) in the Westover Air Reserve Base (ARB) area of responsibility (AOR) to include unit equipped and transient aircraft. Squadron commanders and maintenance supervisors are responsible for executing the group's CDDAR program in accordance with this instruction. All agencies involved with recovery operations will ensure compliance with this instruction to ensure a cooperative, coordinated response to CDDAR situations. The 439th Maintenance Group Supervisors will monitor the CDDAR program and assist squadrons as necessary. This instruction requires collecting and maintaining information protected by the Privacy Act of 1974. System of records notice applies. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Form 847 to 439 MXG/MXQ, 350 Hangar Ave., Box 21, Westover ARB, Chicopee, MA 01022. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at **https://www.my.af.mil/gcss-af61a/afrims/afrims/**.

SUMMARY OF CHANGES

This interim change revises 439AWI21-108 by updating shop codes and equipment listings. Updates have also been made throughout the instruction that corrects incident response expectations as well as who requests special equipment. This interim change also adds **attachments 4**, **5**, **6**, **7** and **8**.

1. Overview. The CDDAR Team must be prepared to respond to aircraft incidents for Westover ARB and surrounding areas. Primary considerations of the CDDAR team are to open the runway for operational use, to prevent secondary damage to disabled/incident aircraft and to preserve evidence for accident/mishap investigation.

2. Procedures/ Responsibilities.

2.1. The Incident Commander (IC) as determined by the 439 AW IEMP Plan 10-2 is the person in charge at the incident until all emergency response actions are completed. Transfer of command to recovery organizations to include the CDDAR Team Chief takes place when hazard mitigation is complete. The Emergency Operations Center (EOC) under the EOC Director develops a recovery plan, which is approved by the Installation Commander before it is implemented. The EOC Director assures expedient, cooperative responses to CDDAR situations by MXG, personnel, fire protection and other essential agencies.

2.2. All base organizations involved in crash recovery must be familiar with the 439 AW Installation Emergency Management Plan (IEMP) Plan 10-2 and the 439 AW Mishap Response Plan 91-204. The responsibilities of each essential base organization for CDDAR response are as follows:

2.2.1. Civil Engineering Fire, Emergency Services (CEF) will assume IC duties at Fire, Hazardous Materials Emergency Planning and Response (HAZMAT) and Chemical, Biological, Radiological, Nuclear, hi-yield Explosives (CBRNE) on base accident/incident sites. The IC is the only point of contact at the accident/incident site. When the area is safe/secured, the IC responsibilities will be turned over to the CDDAR Team Chief.

2.2.2. Security Forces Squadron (SFS) will report and coordinate with the IC to implement responsibilities to control the vicinity of the mishap site.

2.2.3. Civil Engineering Environmental Management (CEV) will advise the Emergency Operations Center (EOC) of hazardous material handling procedures. The CDDAR Team will assist the hazardous material response team members with clean-up, recovery and disposal procedures for all hazardous materials.

2.2.4. Base Bioenvironmental Engineering (SGPB) will advise the EOC Director of the type(s) of Personal Protective Equipment (PPE) required to perform recovery of an aircraft containing composite/hazardous materials. In consultation with the CDDAR team chief will perform annual survey of CDDAR responsibilities and duties, and recommend appropriate PPE to be available to eliminate possible health hazards. SGPB will be available during crash recovery operation to advise on required occupational health medical evaluation/monitoring of personnel involved in CDDAR/clean-up operations; to include respirator, heavy metal testing or other necessary evaluations

2.2.5. Base Safety Office (SE) will advise EOC Director of Safety hazards and concerns to insure safe recovery operations. Provide CDDAR team chief with assistance and guidance in obtaining resources as needed to rectify unsafe conditions on site.

2.2.6. Vehicle Operations section (LGRVO) will stand by to provide heavy equipment as directed by the EOC Director (**Attachment 2**). In the event of an off-base accident/incident, Vehicle Management will be requested to provide transport of CDDAR equipment along with Aircraft ground support equipment to the site.

2.2.7. Contracting Office (CONF/LGC) will procure specialized equipment not available at Westover at the request of the incident commander.

2.2.8. Logistics Readiness Squadron, Fuels Management Flight (LGSF) will stand by to provide de-fueling vehicle(s) as directed by the EOC Director.

2.2.9. Command Post: Notification will first go through 439th Airlift Wing Command Post (CP) and they coordinate with EOD support and AMXS concerning collection and disposal of all explosive hazards. Contact AMXS Electronic Counter Measure section to assist with Flare/Chaff handling.

2.2.10. Maintenance Group Commander (MXG/CC) will direct CDDAR operations for the accident/incident aircraft. Establish CDDAR capability and ensure resources and trained personnel are available to perform CDDAR responsibilities. Appoint MXS CDDAR Team Chief who will ensure vehicle/equipment requirements and recovery support equipment have 24-hour availability (**Attachment 2**).

2.2.11. Maintenance Operations Center (MOC) will immediately establish and maintain communications to act as the Aircraft Maintenance focal point for receipt and transfer of all in-flight or ground emergency information within Westover ARB and surrounding area. In addition, MOC shall run Quick Response Checklist 26 and contact all applicable agencies to respond as expeditiously as possible. When notified of a CDDAR, the senior controller will notify the 439 MXG/CC, key Supervision and the Crash Recovery Team Chief. Notification will include type of aircraft, location, amount of fuel and/or explosives on board, and known extent of aircraft damage. Direct all personnel to stay clear of the recovery site unless assistance requested by the incident commander.

2.2.12. Quality Assurance Office will: Complete Aircraft Mishap Response Checklist 15 extracted from the 439 AW Mishap Response Plan 91-204. Provide the CDDAR Team Chief with guidance concerning aircraft weight and center of gravity computations for disabled/incident aircraft.

2.2.13. AMXS Production Superintendents will: Initiate impoundment procedures, when directed. Direct ground movement of any home station or transient aircraft the EOC Director requests to be moved to facilitate CDDAR operations. Assist the CDDAR Team Chief as needed during recovery operations. Ensure a tow team is available to the CDDAR team for any assistance necessary to aid in the recovery operation. When directed, will contact 439th Logistics Readiness Squadron, Fuels Management Flight (LGSF) through the EOC, to impound any fuel trucks used during ground refueling operations with a mishap aircraft at home station.

2.2.13.1. MXG CDDAR Team Chief will identify team members and specific qualifications, ensure initial training is provided, and conduct recovery training exercises on an annual basis to maintain proficiency. Members of the crash recovery team shall be trained to respond to common incidents requiring CDDAR, e.g. aircraft departing prepared surfaces systems. Track initial and recurring training requirements in the Maintenance Information Systems.

2.2.13.2. Maintain up to date point of contact listing for all team members. List will include contact numbers during duty and non-duty hours. The CDDAR team listing will also identify CDDAR team position, AFSC, and any special qualifications. A current copy of the listing will be available in MOC.

2.2.13.3. Conduct an annual briefing with all the agencies involved in the CDDAR process. This briefing will outline everyone's responsibilities for their respective area. A tabletop exercise will also be conducted in order to check validity of telephone numbers, exercise checklists, as well as personnel capabilities. There will also be a discussion on possible responses to a variety of different scenarios. Maintain a CDDAR continuity book and review/update annually to assess personnel capabilities, exercise checklists, validity of home/business phone numbers, etc.

2.2.13.4. Ensure the CDDAR equipment is maintained and prepared to respond and deploy crash recovery equipment and personnel for Major Aircraft Incidents.

2.2.13.5. Establish a crash recovery training program for team personnel and ensure sufficient team members are qualified in special handling procedures for any unique characterized hazards/materials for assigned aircraft. (e.g. depleted uranium, aircraft composite materials etc.) and document training. Personnel will accomplish annual training on assigned Mission Design Series (MDS) aircraft. Actual aircraft emergencies can be substituted for the required training.

2.2.13.6. Direct and coordinate CDDAR operations as instructed by the EOC through the EOC Director. The EOC will contact the CDDAR Team Chief when incident area is safe for recovery operations to begin. Prior to any recovery actions ensure any hazards, including toxic materials, munitions and radioactive materials are eliminated, and the aircraft and egress systems are made safe for recovery activities and investigation team members. Review and start the CDDAR Team Chief worksheets (**Attachments 4**, **5**, **6**, **7**, **8**). Evaluate the aircraft damage and prepare for recovery operations.

2.2.13.7. Ensure safety briefings are given prior to each new shift coming on duty detailing hazards to personnel and equipment. Maintain continuous communications with the MXG/CC and MOC to keep them informed on the progress of the recovery operation, to include CDDAR team limitations. Document a locally devised CDDAR daily occurrence log to maintain a record of incident.

2.2.13.8. Ensure the crash recovery team members follow all applicable Technical Orders and safety procedures while conducting aircraft recovery.

3. Transient Aircraft Responsibilities:

3.1. CDDAR equipment on station is limited to assigned home station airframe. MXG/CC will ensure additional special equipment and unique requirements for transient aircraft is obtained from applicable sources as directed by HQ AFRC/A4MY (**Attachment 2**).

3.2. CDDAR team chief will contact owning organization to obtain necessary expertise and guidance from appropriate sources. All team members will be briefed on special requirements/health and safety concerns associated with transient aircraft recovery.

3.3. All base organizations will provide assistance with transient aircraft (including civilian aircraft) recovery operations as directed.

4. Safety Considerations:

4.1. All organizations must be aware of the following safety concerns present during crash recovery procedures.

4.1.1. All organizations must communicate and coordinate activities through the EOC during recovery operations.

4.1.2. Operational Risk Management practices will be utilized and are paramount in all decision-making.

4.1.3. Prior to any recovery actions ensure any hazards, including toxic materials, munitions, and radioactive materials are eliminated, and the aircraft and egress systems are made safe for recovery activities and investigation team members. All base organizations should be familiar with safety/health hazards associated with any unique characteristics/hazards/materials for assigned aircraft (e.g. JP-8, depleted uranium, etc.) and document all required training.

CRAIG C. PETERS, Colonel, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 21-1, *Maintenance of Military Materiel,* 01 August 2018

AFI 21-101, AFRC Supplement, *Aircraft and Equipment Maintenance Management,* 24 August 2015

AFI 10-2501, AFRC Supplement, *Air Force Emergency Management Program,* 19 October 2017

439th Airlift Wing Installation Emergency Management Plan 10-2, 01 January 2018

439th Airlift Wing Mishap Response Plan 91-204, 20 July 2005

Adopted Forms

AF Form 847, *Recommendation for Change of Publication.*

Attachment 2

ADDITIONAL EQUIPMENT TO BE PURCHASED LOCALLY AS REQUIRED:

A2.1. Fixants, Hold Down Solution, Polyacrylic Acid, Floor wax, and other required items will be purchased as required.

A2.2. CDDAR VEHICLES:

A2.2.1. 30 Ton Crane Unit Owned; 15 Ton Crane (available through vehicle maintenance, PMI, 24/7 availability)

A2.2.2. Flat Bed Truck (available through vehicle maintenance)

A2.2.3. All terrain forklift(s) (available through vehicle maintenance)

A2.3. GROUND SUPPORT EQUIPMENT:

A2.4. 439 MXS AGE Flight. 439 MXS AGE Flight will supply, inspect, support and service all MC-7 air compressors, lighting units, heaters, air conditioning units , generators, Jacking Manifold and AGE Equipment as identified.

A2.5. CDDAR EQUIPMENT, VEHICLE, AND SUPPORT EQUIPMENT LIST:

Table A2.1. CDDAR EQUIPMENT, VEHICLE, AND SUPPORT EQUIPMENT LIST.

ITEM:	LOCATION:	ITEM:	LOCATION:
Air Bag Modules	Building 7040	Crash axe	CDDAR Trailer
Air Bag Inflation Manifolds	Building 7040 & CDDAR Trailer	Tyvek suits (Consumable)	CDDAR Trailer
Tow Bridles w/F2 trailers	Building 7040	Megaphone	CDDAR Trailer
Turfor Winches	CDDAR Trailer	40’ x 12’ lifting strap	CDDAR Trailer
Respirators, PPE	CDDAR Trailer	14’ spreader bar	Lift beam rack
60 Ton tripod jacks	Building 7040	Tow Vehicle, Tug	Maintained by AMXS
30 ton tripod jacks	Building 7040	Response trailer tow vehicle	To be procured as a future purchase per vehicle ops. Vehicles located on base that can be utilized (fuel

50 ton D-rings	CDDAR Trailer	Respirator Filters (Consumable)	CDDAR Trailer
30 ton D-rings	CDDAR Trailer	Floor Wax (Used as fixant, Consumable)	To be purchased when required
25 ton D-rings	CDDAR Trailer	28’ utility trailer (CDDAR Response Trailer)	Building 7040
17 ton D-rings	CDDAR Trailer		
18 ton 12’ straps	CDDAR Trailer		
15 ton 6’ straps	CDDAR Trailer		
Pick axe	CDDAR Trailer		
Shovel	CDDAR Trailer		
Note: This list is an example of equipment and consumables, but is not all encompassing. The equipment and consumables required will vary based on the nature of the incident. Items required for CDDAR response that are not possessed will be purchased, leased, rented, or borrowed as required.			

Attachment 3

POINT OF CONTACT LIST – KEY PERSONNEL AND RESOURCES

Figure A3.1. POINT OF CONTACT LIST – KEY PERSONNEL AND RESOURCES.

1. AMC AIRCRAFT: Tanker Airlift Control Center (TACC), Scott AFB, Illinois.

1-800-247-6625

2. AFRC CRASH RECOVERY SUPERINTENDENTS:

A) HQ AFRC/A4MY: DSN: 497-1645 **Comm:** 478-327-1645

B) 4AF/A4MY: DSN: 447-7643 **Comm:** 951-655-7643

C) 10AF/LGMA: DSN: 739-5155 **Comm:** 817-782-5189

D) 22AF/A4M: DSN: 625-3853 **Comm:** 678-655-3853

Attachment 4

CRASH / DISABLED AIRCRAFT

Figure A4.1. PRE-RESPONSE BRIEFING WORKSHEET.

1. _____ Initial information on crash/mishap. What facts are known at present time?

2. _____ Introduce all members of the team and what their specialty or expertise is.

3. _____ Brief the sequence of events that will normally take place.

4. _____ Name of the On Scene Commander

5. _____ Name of the DCG Maintenance Representative

6. _____ Name of the Crash Recovery Team Chief

7. _____ Await authorization from MOC or DCG Maintenance Rep to proceed to crash/mishap site.

Attachment 5

CRASH DISABLED AIRCRAFT RECOVERY WORKSHEET

(THIS WILL BE ACCOMPLISHED BEFORE AIRCRAFT IS MOVED/LIFTED)

CRASH RECOVERY TEAM CHIEF WILL ENSURE:

1._____ Assemble Crash Recovery Team.

2._____ Brief the team on the current situation using the Pre-Response Briefing Checklist. (Attachment 5)

3._____ Check equipment and prepare for transportation to crash site.

4._____ Once authorization is given to access the crash site, use the Aircraft Data Checklist (page 3) to gather as much data as possible (i.e. aircraft weight, cargo, structural damage, etc.)

5._____ Use the Hazard Checklist (page 4) to identify what hazards exist.

6._____ Using data from the Aircraft Data Checklist and the Hazard Checklist, accomplish a risk assessment using Operational Risk Management (ORM).

A. ID Risk. Identify the hazards.

B. Assess the Risk. Risk is the probability and severity of loss linked to the hazard.

C. Analyze Risk Control Measures. Investigate specific strategies and tools that reduce or eliminate risk.

D. Make Control Decisions. Deal with risk by accepting, avoiding, reducing, spreading, or transferring it.

E. Risk Control Implementation. Develop implementation strategy.

F. Supervise and review. Once controls are in place, the process must be scrutinized to determine its effectiveness.

7. _____ Develop a recovery plan and assign duties, using the following factors:

A. Aircraft condition (i.e. structural damage, gear up/down, weight, etc.)

B. Terrain (i.e. level, sloped, muddy, snow, etc.)

C. Weather (i.e. rain, wind, cold, etc.)

D. Personnel and equipment available.

E. Hazards identified using ORM

F. Urgency of recovery (i.e. runway out of commission)

G. Brainstorm all problems, and encourage input from all personnel.

8. _____ Before commencing with the recovery, give a safety briefing using the Safety Briefing Checklist (attachment 8)

9. _____ Fill out a Key Personnel Contact Information sheet

Attachment 6

AIRCRAFT / SITE DATA WORKSHEET AIRCRAFT INFORMATION

Figure A6.1. AIRCRAFT / SITE DATA WORKSHEET AIRCRAFT INFORMATION

1. Aircraft Type and Model……_____
2. Mishap Date……_____
3. Time……_____
4. Tail Number……_____
5. Empty Weight……_____
6. Total Fuel Load (current)…….. _____
7. Fuel Load by Tank…… _____
8. Cargo Load (weight)…….. _____
9. Cargo Type (pallets, rolling stock, vehicles, etc)_____
10. Munitions On Board……_____
11. Major Structure Condition……_____
12. Landing Gear Intact……_____

Additional aircraft information or comments:_____

_____

_____

_____

_____

_____

SITE INFORMATION

1. General Location…… _____
2. Exact Position…… _____
3. Type Terrain…….. _____
4. Temperature…… _____
5. Weather (Rain, snow, fog, etc.)…… _____
6. Wind Speed and Direction…… _____
7. Weather Forecast…….. _____

Additional site information of comments:_____

_____

Attachment 7

HAZARD IDENTIFICATION WORKSHEET

Figure A7.1. HAZARD IDENTIFICATION WORKSHEET.

	Yes/No	Comments
1. Explosives/Ammunition/Flares	_____	_____
2. Bio hazard (blood/remains etc.)	_____	_____
3. Fuel	_____	_____
4. Toxic Chemicals.....	_____	_____
5. High Pressure Cylinders	_____	_____
6. Corrosive Agents.....	_____	_____
7. Ejection Seats	_____	_____
8. Ejection Hatches	_____	_____
9. Batteries.....	_____	_____
10. Damaged Tires.....	_____	_____
11. Composites.....	_____	_____
12. Review T.O. 00-105E-9.....	_____	_____

Attachment 8

CRASH / DISABLED AIRCRAFT RECOVERY SAFETY BRIEFING WORKSHEET

Figure A8.1. CRASH / DISABLED AIRCRAFT RECOVERY SAFETY BRIEFING WORKSHEET

1._____

All personnel involved with the recovery operation must have the following Personnel Protective Equipment (PPE).

(1) Steel toe boots

(2) Eye protection

(3) Ear protection

(4) Hard hat

(5) Safety vest

(6) Leather work gloves

(7) Reflective belt

(8) Whistle

(9) Dressed for weather conditions (i.e. cold, hot, rain, etc.)

2. _____ Except for an emergency, no team member will move any portion of the aircraft unless it has been cleared by the On Scene Commander (MOSC) or the Team Chief. Each member will do only those tasks he/she was directed to do by the MOSC or the Team Chief. Team members will do assigned tasks until relieved by another team member.

3. _____ IF FOR ANY REASON, a team member cannot safely do his/her assigned tasks (too dangerous or too many people in the area) it is his/her responsibility to notify the team chief.

4. _____ Use spotters when backing the crash trailer, vehicles and equipment.

5. _____ Any team member can halt the lifting/recovery operation if an unsafe condition is noticed. Methods of alerting of unsafe conditions will be by radios or whistles.

6. _____ Be familiar where all emergency equipment is located at the site, such as: fire extinguishers, eye wash, first aid kit, MSDS's.

7. _____ Establish a crash site evacuation plan in the event of a fire or other emergency.

8. _____ Establish procedures and lines of communication to various departments (fire dept, MOC, Safety, etc.) to assist in the event of an accident or injury.

9. _____ Be aware of your surrounding and the various hazards:

A. Never be under an aircraft while it's being lifted unless manning a jack.

B. Stay clear of guide/tow cables, chains or straps under tension.

C. Take precautions to prevent falls from elevated areas (aircraft, stands, etc.)

D. Wear the appropriate PPE at all times

E. Use proper lifting techniques

F. Take measures to avoid heat stroke, dehydration, sun burn, frost bite, etc (drink plenty of water)

10. Ask all team members for any additional suggestions or input.