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Maintenance



**CRASHED, DAMAGED, OR DISABLED
AIRCRAFT RECOVERY (CDDAR) PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 21-1, *Managing Aerospace Equipment Maintenance*, Base OPLAN 10-2, AFMAN 32-4004, *Emergency Response Operations*, Interim Change 2004-1 to AFI 21-101, *Aerospace Equipment Maintenance Management*, TO 00-105E-9, *Emergency Rescue Information*, AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, applicable 91- and 92-series AFOSH standards, and the aircraft specific Dash-2 and Dash-3 series TOs. It addresses minimum requirements for implementing Crash, Damaged or Disabled Aircraft Recovery procedures. This instruction addresses specific responsibilities and pertains to all applicable base agencies attached to the 60th/349th Air Mobility Wing.

1. General.

1.1. Travis Air Force Base will return to operational status as soon as practical after a mishap. The 60 AMW commander or designated representative, as stated in AFMAN 32-4004, will determine the degree of emergency and make the immediate decision regarding the speed with which the runway is cleared. This decision is dictated by evaluation of alert status, number of returning aircraft, available weather alternates, and other operational criteria.

1.2. Terms defined:

1.2.1. CDDAR Team Chief – Responsible for the overall CDDAR Program development, implementation, and management.

1.2.2. CDDAR Team Supervisor – Single on-scene focal point for CDDAR operations, trained in CDDAR supervisory duties, and reports directly to the on scene commander. All CDDAR operations will be coordinated through this individual. A CDDAR Supervisor will be designated upon notification of a recovery operation. If the operation will be ongoing, two CDDAR Supervisors will be designated for 24-hour operations. This individual will be easily identifiable by a colored hard hat and reflective vest with “CDDAR Team Supervisor” displayed.

1.2.3. CDDAR Team Member – Work directly for and report to the CDDAR Team Supervisor. These individuals must be trained as CDDAR Team Members. CDDAR Team Supervisor trained personnel may be utilized as members during CDDAR operations.

2. Responsibilities.

2.1. 60/349 MXG manages the CDDAR program and will ensure personnel are trained in recovery operations and essential equipment is on hand. Equipment not on hand will be identified as such and a plan will be established to acquire that equipment, as necessary, to accomplish CDDAR operations. See section C for specific MXG organization responsibilities. In addition, a Primary and an Alternate Crash Recovery Team Chief will be designated in writing by the MXG/CC and will be the focal point for the base's CDDAR program.

2.2. 60/349 MSG will:

2.2.1. Provide emergency crash/fire response, as well as hazardous materials and spill containment capability beyond the scope of the unit spill teams.

2.2.2. Provide security force personnel to secure mishap scene and the wreckage assembly point, as directed by the Disaster Control Group (DCG) On Scene Commander (OSC).

2.2.3. Provide tractor trailers and forklifts, as necessary, to transport CDDAR support equipment to the mishap site, as well as transport wreckage to the wreckage assembly point. An all terrain forklift may also be required, depending on the mishap site conditions.

2.2.4. Provide heavy equipment, i.e., bulldozers, cranes, and dump trucks, as required by the CDDAR Supervisor.

2.2.5. Provide maintenance support to heavy equipment participating in the recovery operation, as directed by the DCG/OSC.

2.2.6. Provide on scene fuel servicing of recovery support equipment, to include AGE and heavy equipment.

2.2.7. Provide contracting support for specialized equipment as necessary to support recovery operation.

2.2.8. Provide additional personnel, equipment, and services as directed by the DCG/OSC.

2.3. 60/349 MDG will:

2.3.1. Accomplish bio-environmental responsibilities as addressed in 60 AMW Full Scale Threat Response (FSTR) O-Plan 10-2.

2.4. Any additional inter-base support requirements will be coordinated through the OSC.

3. Procedures.

3.1. Upon declaration of a potential or actual major aircraft accident on the runway or in close proximity, the following sequence of events will occur:

3.1.1. All accident response agencies are notified according to FSTR O-Plan 10-2.

3.1.1.1. 60/349 MXG Quality Assurance will implement impoundment procedures of the aircraft and all Aerospace Ground Equipment (AGE) that may have played a role in the mishap

sequence.

3.1.1.2. 60/349 MXG Maintenance Operations Center (MOC) Senior Controller will notify the Equipment Maintenance Squadron (EMS) Production Superintendent (Echo 3) of the mishap, and provide type of aircraft, location, amount of fuel on board, explosives on board, and known extent of aircraft damage. The Senior Controller will designate one aircraft maintenance radio net as the primary maintenance recovery operation net and direct all personnel who are not directly involved in the recovery operation to switch to an alternate net. The MOC will also notify all 60 MXG squadrons' supervision that a crash recovery is in progress and to stand by to respond with additional personnel and equipment as directed by their DCG representative. If crossing an active taxiway or runway is required during the recovery operation, the MOC will coordinate an escort(s) (follow me) from Transient Alert.

3.1.1.3. Once alerted of a recovery operation, 60 EMS Aero-Repair (AR) Shop's Shift Supervisor will recall/assemble a recovery team and designate a Crash Recovery Team Supervisor with coordination of Flight Supervision and Squadron Maintenance Operations, if time permits. A second team will be identified with a team supervisor to sustain around the clock recovery operations, if necessary. Ensure team consists of personnel with special qualifications i.e. a jacking manifold operator and a crane operator. If it is a deploying recovery operation, coordinate any special requirements such as passports, country clearances, etc., through the MOC.

3.1.1.4. Other MXG squadrons will provide manpower and aircraft system expertise to the Crash Recovery Team Supervisor as required.

3.1.2. The 60 AMW commander or designated representative determines and notifies the on-scene commander of removal conditions classified as:

3.1.2.1. Emergency. This condition requires immediate runway clearance at the risk of losing personnel and equipment. Although rescue may be attempted, the runway will be cleared in 30 minutes or less.

3.1.2.2. Urgent. This condition requires runway clearance as soon as possible after completion of rescue, fire fighting, and explosive ordinance disposal (EOD) operations. The runway will be cleared in less than 1 hour and 30 minutes, unless EOD consideration dictates otherwise, using techniques identified in applicable technical publications.

3.1.2.3. Routine. This condition allows sufficient time to use recovery techniques to minimize further damage to aircraft and precludes exposing personnel or equipment to danger.

3.1.3. The on-scene commander will use all assets available to ensure aircraft removal activities are conducted in a manner, which ensures the conditions of removal are met. Normally, this will be accomplished by the CDDAR representatives assigned to 60 EMS AR section. After initial evaluation, the Crash Recovery Team Supervisor will coordinate with the appropriate AMXS production superintendent and KC-10 COMBS recovery representative for required assistance. Under certain conditions, such as "emergency" or "urgent", time may not permit the use of normal procedures. In this case, the on-scene commander will, in conjunction with key members of the disaster control group, decide which removal methods are best, and which disaster response activities (such as EOD, fire fighting, decontamination, and rescue) defined in AFMAN 32-4004 may or may not proceed. Under these conditions, every on-base asset may be called into recovery operations.

3.1.4. Recovery operations will proceed under the detailed instructions of AFMAN 32-4004 and FSTR OPLAN 10-2, to ensure all functions work as a cohesive team, utilizing detailed plans for maintenance activities, Crash Recovery and/or Emergency Aircraft Removal Procedures, and appropriate checklists. The 60 EMS CDDAR Team Supervisor will identify equipment (e.g., bulldozers, flatbed trucks, front-end loaders, cranes, and fork lifts) for use under one or more removal conditions as set forth in 60 AMW OPLAN 10-2. Squadrons will keep this equipment list current and provide it to the disaster control group representative. The CDDAR Team Supervisor will advise the on-scene commander of the most prudent method of aircraft removal under the declared removal condition.

4. Equipment.

4.1. The following equipment is essential for CDDAR operations, as well as clearing active runways and taxiways. Operate powered equipment weekly and service as necessary. Ensure one toolbox is available for the crash crew at all times. The listed equipment will not be moved to an off-base location without specific approval of the 60 AMW/CC or higher designated representative.

4.1.1. 15-ton crane or suitable substitute. The 60/349 EMS Aero Repair and 60 Aircraft Maintenance Squadron (60 AMXS) will furnish and operate equipment as required. When Aero Repair's 15-ton crane is inoperative, they will notify 60 AMXS. In such cases, 60 AMXS 15-ton crane will be utilized as a back up for crash recovery. Crash recovery will check the status of the 60 AMXS 15-ton crane daily while Aero Repair's 15-ton crane is inoperative. 60/349 CES will provide additional crane support, if required.

4.1.2. Aircraft lifting bags and control consoles. (60 EMS Aero Repair) Air bags and control consoles are stored in the south-east corner of Hangar 810.

4.1.3. Four air compressors (MC-7), or equivalent. (60 EMS/AGE)

4.1.4. Stewart and Stevenson Tug (U30), or equivalent. (60 AMXS)

4.1.5. Tow bars for assigned aircraft. The above listed equipment, due to design limitations, allows recovery of large body aircraft. Crash Recovery/Transient Maintenance do not maintain all equipment and technical orders necessary for recovering all airframes.

4.1.6. Tethering/lifting sling assembly, P/N OHME65B00002 or equivalent. (COMBS procured through contract)

4.1.7. 80-ton low profile lifting jacks. (COMBS procured through contract)

4.1.8. Hoisting fittings, two each, P/N DZZ7173. (COMBS)

4.1.9. NF-2 light carts as required for night recovery operations (60 EMS/AGE).

4.1.10. 60 EMS CDDAR Team Chief will establish and maintain a CDDAR initial response trailer. This trailer will store initial response equipment, CDDAR Team PPE (gloves, hard hats, reflective belts/vests, composite material protective equipment, etc.), and other equipment deemed necessary by the CDDAR Team Chief. All equipment will have identification numbers and be on an equipment inventory list that will stay with the trailer. Trailer and equipment will be inspected and inventoried once a month and documented accordingly.

4.2. Secondary Equipment.

- 4.2.1. Hydraulic Pumping Unit (Jacking Manifold). (60 EMS/AGE)
 - 4.2.2. Six each 70-ton portable jacks. (60 EMS/AGE)
 - 4.2.3. Wood Shoring.
 - 4.2.4. Tow Bar Set, MLG, two each (4S80005), located in south-east corner of Hangar 810. This piece of equipment can be used for both the C-5 and C-17 aircraft. (60 EMS-Aero Repair)
 - 4.2.5. Converter Dolly, 9-ton minimum. (Procured from off base - 60 CONS)
 - 4.2.6. Semi-trailer, six wheel, 40-ton minimum capacity, low bed. (Procured from off base - 60 CONS)
 - 4.2.7. The Crash Recovery Team Supervisor will coordinate with 60 LRS to supply an additional 7.5-ton or larger tractor, a 38-foot trailer, and a 10K forklift with driver, as necessary to support recovery operations. Vehicle operations personnel are not qualified to operate front-end loaders, therefore, 60 CES will supply and operate front-end loaders, as required.
- 4.3. Off-base crash recovery.
- 4.3.1. Upon notification of an off-base crash, the 60 EMS Production Supervisor, the AR Shop shift supervisor and the 60 AMW MOC will implement the crash recovery recall roster.
 - 4.3.2. MOC will alert the vehicle operations dispatcher that the following vehicles may be required for dispatch. The dispatcher will reserve vehicles and drivers for dispatch.
 - 4.3.2.1. One six-passenger four-wheel-drive truck.
 - 4.3.2.2. One 1.5-ton truck or equivalent.
 - 4.3.2.3. Two 7.5-ton tractors or larger and 40-foot trailers for transporting equipment and wreckage as needed.
 - 4.3.3. The Crash Recovery Team Supervisor will review the situation in conjunction with the on-scene commander to determine equipment requirements.
 - 4.3.4. Under no circumstances will personnel or equipment be dispatched off-base, if it jeopardizes the mission of the on-base recovery operation, unless directed by the 60 AMW/CC or designated representative.
 - 4.3.5. Control of the mishap scene belongs to the OSC until released to the president or interim president of the Safety Investigation Board.
 - 4.3.6. Do not remove or disturb equipment unless directed by the Safety Investigation Board President, or OSC, to accomplish rescue operations or for security reasons.
 - 4.3.7. Once the wreckage is released to the crash recovery team, augmented personnel from base resources will load the wreckage for return to Travis Air Force Base. A facility large enough to house wreckage will be identified and secured, allowing only essential, authorized personnel access to the facility.
 - 4.3.8. CDDAR Team Supervisor will assist in the development of a mishap site clean up plan.
 - 4.3.9. The CDDAR Team must be capable of deploying in support of C-5 and/or KC-10 aircraft as directed by AMC/LGRC. If tasked, all base agencies will provide required support to expedite CDDAR Team/equipment departure.

5. Training.

5.1. The 60 EMS CDDAR Team Chief will:

5.1.1. Implement a realistic training program and coordinate practice exercises through 60 AMW Wing Plans to allow for productive joint unit training. This should include tenant unit participation in local training exercises. Training plans will be developed and reviewed/updated on an annual basis.

5.1.2. Assign recovery duties to task-qualified maintenance personnel within 180 days of arrival. CDDAR trained personnel will be identified as a "Team Supervisor" or "Team Member" on the section's recall roster. Special equipment qualifications will be identified using a maintenance information system or locally developed spreadsheet.

5.1.3. Provide actual and simulated training to include, but not limited to:

5.1.3.1. Basic concepts of crash/disabled recovery procedures.

5.1.3.2. Safety precautions to include hazards associated with initial response, i.e., hazardous liquids, composite materials, and potentially hazardous cargo.

5.1.3.3. Tower light signals and runway markings.

5.1.3.4. Aircraft Lifting Bag and Control Console operation.

5.1.3.5. Crash trailer equipment and location of secondary equipment.

5.1.4. Ensure trained personnel and resources are available to support CDDAR responsibilities.

5.1.5. Consult with Bio-environmental Engineering Flight to determine personnel health hazards, required training, and appropriate levels of personal protective equipment.

5.1.6. Establish a CDDAR continuity book, containing at a minimum, a training plan, memorandums of agreement/understanding with other units, Host/Tenant Support Agreements with tenant organizations as required, and an inventory to identify the locations of all CDDAR equipment.

5.1.7. Coordinate with other host base and tenant organizations through 60/349 LRS, to establish Memorandums of Agreement and Host/Base Support Plans, to establish mutual support for CDDAR operations.

6. Transient Aircraft Support.

6.1. 60/349 AMW will provide CDDAR support to transient aircraft. 60/349 EMS Aero Repair will respond and provide initial assessment of the scene and coordinate with unit of assignment through the 60/349 MXG for required expertise, personnel, and support equipment.

6.2. All base agencies will provide required support to incoming CDDAR Team, as necessary to expedite recovery operations.

ALLARD R. CARNEY, Colonel, USAF
Director of Wing Staff

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 21-1, *Managing Aerospace Equipment Maintenance*

AFI 21-101 and AMCSUP1, *Aerospace Equipment Maintenance Management*

Interim Change 2004-1 to AFI 21-101, *Aerospace Equipment Maintenance Management*

AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*

AFMAN 32-4004, *Emergency Response Operations*

60 AMW FSTR OPLAN 10-2

T.O. 00-105E-9, *Emergency Rescue Information*