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RAF LAKENHEATH (USAFE)**

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Maintenance



**EMERGENCY RESPONSE AND CRASH
DAMAGED DISABLED AIRCRAFT
RECOVERY (CDDAR)**

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SUMMARY OF CHANGES

This instruction has been substantially revised. It updates the previous edition with the incorporation of the F-35 into the 48th Fighter Wing as well as increased guidance on crash equipment requirements and responsibilities for CDDAR Team Chiefs when responding to off-base crashes.

1. Overview. The overview of this publication is to identify crash recovery and in-flight/ground emergency procedures for the recovery of crashed and disabled aircraft and applies to all activities under the functional and operational control of the 48th Fighter Wing (FW).

2. Definitions and Guidance.

2.1. A crashed aircraft is an aircraft that has suffered catastrophic damage and requires team operations to recover the aircraft.

2.2. A disabled aircraft is an aircraft that cannot/should not be moved using its own power but can be towed using its own landing gear.

2.3. A damaged aircraft is an aircraft that cannot be moved using its own power or by towing using its own landing gear.

2.4. Wreckage will not be disturbed IAW DAFI 91-204, *Safety Investigations and Reports*, with the exception of essential rescue operations. To prevent interference with vital air operations, the On-Scene Commander may direct wreckage to be moved as deemed necessary. See 48 FW Plan 10-2, *Installation Emergency Management Plan*. (IEMP)

3. Roles and Responsibilities.

3.1. General Responsibilities. Squadron commanders and supervisors are responsible for ensuring compliance with this instruction. Supervisors at all levels must recognize the sources of hazards and apply appropriate safety practices to minimize their effect. There is an infinite variety of possible emergency and crash recovery situations, therefore specific procedures cannot be prescribed for every situation. All aircraft recovery actions are coordinated through the disaster control group to the Incident Commander (IC). Practice/participation in wing crash recovery exercises and implementations of operational risk management techniques are imperative for all emergency and crash recovery operations.

3.2. 48th Maintenance Group Commander (MXG/CC):. Will identify Crash Recovery Team Chiefs (CRTC) by memorandum and track these individuals on the Special Certification Roster. CRTCs will be qualified to the 7-skill level (minimum) and meet the background requirements as prescribed in TO 00-80C-1, *Crashed, Damaged, Disabled Aircraft Recovery Manual*, paragraph 1.10.2.2 and DAFI 21-101 paragraph 11.28.2.6.1. CRTCs respond to and coordinate all aircraft lifts (segmented bags or crane) for exercise and real-world scenarios. As a minimum, CRTCs will respond to all CDDAR incidents.

3.3. 48th Equipment Maintenance Squadron (EMS) Maintenance Flight Responsibilities:.

3.3.1. Ensure enough CRTCs are trained and Crash Recovery Teams (CRT) are formed to cover all Royal Air Force (RAF) Lakenheath local flying operations. To respond to disabled aircraft during normal flying operations, each CRT will consist of a team leader/tow supervisor, tow vehicle operator, and brake rider/B-Man. CDDAR response

teams will consist of a team chief, crane operator (as required,) and the required manning (designated by the team chief) to facilitate recovery procedures of crashed or damaged aircraft. Team leads will be a SSgt or TSgt, 7-skill level EMS Maintenance Flight technician for F-15C/D/E or F-35A Mission Design Series (MDS). The team leader is the on-scene technical advisor to the fire chief.

3.3.2. Ensure a standby CRT is designated for all non-scheduled flying hours. **Note:** A list of standby CRT personnel will be published monthly. This list will be furnished weekly to the Maintenance Operations Center (MOC) by the EMS supervision for inclusion on the standby duty roster.

3.3.3. Will utilize a locally developed tracker to identify vehicles and support equipment (SE) to support CDDAR operations to ensure 24-hour availability per DAFI 21-101, *Aircraft and Equipment Maintenance Management, paragraph 11.28.2.5.2.*

3.4. Aircraft Owning Organization. Following an IFE/GE, the Aircraft Maintenance Unit (AMU) or Flying Generation Squadron (FGS) owning the aircraft will:

3.4.1. Assemble a tow crew with tow vehicle, tow bar, and all required safety devices.

3.4.2. Assemble a de-arm crew (if required) and standby at the location designated by the CRT.

3.4.3. Tow the aircraft from the drop off location to the designated parking spot. **Note:** The CRT will tow the aircraft to the nearest point off the active runway and turn the aircraft over to the owning organization.

3.4.4. Remove the safety devices installed by the CRT from the aircraft and owning unit will install their own safety devices.

3.4.5. If crash wheels are used the owning AMU/FGS will change the wheel and return the crash wheel back to the EMS Maintenance Flight as soon as possible.

3.4.6. Supply qualified MDS specific personnel to assist in the removal of aircraft components as necessary.

4. Minimum CDDAR Vehicles and Equipment Requirements.

4.1. The EMS Maintenance Flight will be equipped with a crash hotline and base station radio for monitoring the crash dispatch net.

4.2. Primary response vehicles will be provided and maintained by the 48th Logistics Readiness Squadron (LRS) Transportation Flight. Response vehicles will be 6-passenger, 1-ton pick-up trucks with heavy duty pintle-hook and utility body (or equivalent) for storage and security of all tools and CDDAR equipment (designated Recovery 1, Recovery 2, etc.). At a minimum, one of these vehicles must have 4x4 capability to allow for off-road use. All vehicles will be equipped with emergency lights, siren, radio (capable of monitoring all maintenance nets to include the Secondary Crash Net independently), Technical Orders (TO), tools, and safety equipment to perform immediate response operations.

4.3. An MB-4 tow tractor or equivalent (designated Recovery Tow) will be provided and maintained by 48 LRS Transportation Flight. Tow tractor will be equipped with emergency lights, siren, and radios. Installed radios will be capable of monitoring all maintenance nets, to include the secondary crash net independently.

4.4. One MD-1 Universal Tow Bar provided and maintained by 48 EMS Aerospace Ground Equipment (AGE) Flight.

4.5. Three Disabled Wheel Dollies (wheel skates) maintained by 48 EMS AGE Flight.

4.6. Spare wheel/tire assemblies for F15C/D/E. Tire pressure checks on spare aircraft wheel assemblies will be accomplished weekly, prior to local flying and documented on Air Force Technical Order (AFTO) Form 244, as prescribed by TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*.

4.7. Heavy industrial crane (82K pound capacity) provided by 48 CES and maintained by 48 LRS Transportation Flight. If CES/LRS cannot provide a suitable crane, civilian equivalent will be contracted through the 48 EMS Resource Advisor (RA) and the 48th Contracting Squadron (CONS). RAF Lakenheath does not own nor operate cranes for aircraft emergency response. If a crane is required, a crane signaler and operator will be provided by the contracted company.

4.8. CDDAR recovery trailer(s) will, as a minimum, include the following Personal Protective Equipment (PPE):. Tyvek® suits, gloves, full face respirators, and hardhats.

4.8.1. Full face respirators will be located in the Phase Support Section to avoid exposing them to extreme heat and cold weather per the Workplace Respiratory Protection Plan.

4.8.2. In addition to donning Tyvek® suits, gloves, and full-face respirators, personnel responding to crash sites with exposed composite/hazardous materials will tape off the cuffs of their sleeves and pant legs to prevent personal clothing contamination.

4.9. Pneumatic Lifting air bags in adequate quantity to support a full CDDAR lift of the F-15 or F-35 aircraft assigned to the 48 FW.

4.10. Control consoles in adequate quantity to operate the required number of air bags in a single operation.

4.11. One F-15 and one F-35 lift sling will be maintained by the EMS Maintenance Flight.

4.12. General lifting/securing devices such as belly bands, shackles, chains, cargo tie-down straps, block and tackle, sling adapters, jack adapters, nylon/cotton rope will be maintained by the EMS Maintenance Flight.

4.13. Semi-tractor truck and 40-foot flatbed trailer maintained and operated by the 48 LRS Transportation Flight to facilitate CDDAR aircraft removal as determined by CRT. If CES/LRS cannot provide a suitable truck and trailer, civilian equivalent will be contracted through the 48 EMS RA and 48 CONS.

4.14. All Terrain Forklift maintained by 48 LRS Transportation Flight.

4.15. Bulldozer maintained by 48 LRS Transportation Flight.

5. Emergency Response Procedures.

5.1. The IC or designated representative is in charge of the ground response to all in-flight/ground emergencies (IFE/GE) until the emergency is terminated, turned over to the Recovery Operations Officer, or deemed safe for CRT to take charge of the aircraft. The IC will establish a cordon and ensure accountability of all initial responders that are within the established cordon. CRT will obtain clearance from the IC prior to engaging in

any emergency recovery operation. The CRT will respond to all IFE/GEs broadcast over the Secondary Crash Network or any other viable means of communication and render assistance.

5.2. CRT tasks requiring assistance from other base organizations will be coordinated through the MOC and/or the Emergency Operations Center (EOC) by the CRTC, using 48 FW IEMP.

5.3. For recovery of Northern Atlantic Treaty Organization (NATO) or large-frame aircraft beyond the capability of the CRT, the CRTC will contact the United States Air Forces in Europe (USAFE) Command Post through the Lakenheath Command Post for assistance.

5.4. Transient Alert will assist CRT with all transient aircraft emergencies. Refer to TO 00- 105E-9, *Aerospace Emergency Rescue and Mishap Response Information (Emergency Services)*.

5.5. Bioenvironmental Engineering Flight (BEF) will respond to and survey CDDAR incidents where aircraft structures composed of composite materials have been damaged/exposed to provide technical expertise and implement applicable environmental protection procedures.

5.6. During IFE/GE the Team Leader will:

5.6.1. Ensure the CRT is available with the proper equipment at the pre-planned location as soon as possible after notification of an IFE/GE. **Note:** Point 3 south is the normal staging area for all In Flight Emergencies (IFE).

5.6.2. Ensure that hoisting, wheel skates, or pneumatic bags are used as directed by all applicable technical guidance.

5.6.3. Establish immediate radio contact with the IC for assistance and exchange of information pertinent to the recovery operation. Fire/Crash net will be used for all recovery operations unless otherwise directed by the Tower or the IC.

5.6.4. Keep MOC and IC informed of actions being taken and provide an estimated time of recovery.

5.6.5. Obtain removal priority from the IC or designated representative for the removal of the aircraft from the runway or taxiways. Recovery methods selected will be based on safety, the removal urgency, and priority specified by the IC.

5.7. Aircrew will remain with the aircraft until the aircraft owning maintenance personnel take control of the aircraft or are released by the IC or CRTC. To allow for rapid removal of the aircraft from the runway, the aircrew will act as the brake rider while the aircraft is being towed from the active runway.

5.8. MOC will act as UCC and ensure a CRTC is notified in the event of a CDDAR incident.

6. Runway Closure and Recovery Priorities. As a minimum, a disabled aircraft on the runway causing runway closure will be treated as a Ground Emergency (GE). Tower personnel and/or the Supervisor of Flying will initiate GE procedures. In the event that a crashed, damaged, or disabled aircraft is on the runway the 48 FW Commander (FW/CC) or designated representative will determine the degree of urgency required to clear the runway. If immediate removal priority is

given, the CRTC has the option of using heavy construction equipment from 48 CES after coordination with Airfield Management. CRT will direct the operation and assist as necessary to push, pull, lift, or scrape the aircraft from the runway as the situation warrants. Note: 48 CES procedures to facilitate response as dictated by this paragraph are listed in 48 FW IEMP. Current runway priorities are listed in Lakenheath Instruction 11-250, *Airfield and Flying Operations*

7. Off-Base Recovery Procedures. Off-base recovery actions are coordinated through the 48 FW/CC through the Disaster Response Force (e.g., Command Post, Unit Control Centers (UCC), EOC, and any specialized teams). Refer to 48 FW IEMP. The EMS Maintenance Flight will coordinate with 48 CONS UCC section for assistance in aircraft recovery in situations that occur in difficult to reach areas such as water or mountains.

7.1. Under the United Kingdom Ministry of Defence (MOD) and Military Aviation Authority's (MAA) Manual of Aircraft Post Crash Management (MAPCM), paragraph 100, the MOD will be the lead agency for all off-base recovery operations. The MOD will work jointly with the 48 FW throughout the process.

7.2. Recovery Team Chief will respond, when notified, to the crash site and will coordinate with IC, Recovery Operations Chief (ROC), and host nation incident response agencies for recovery operations.

7.3. Recovery Team Chief will carry, initially, the minimum PPE requirements for composite/hazardous material response to the crash site as indicated in paragraph 4. 8 and will coordinate with the IC and Bioenvironmental Office in order to determine appropriate level of PPE required to operate in and around the crash site.

7.4. Recovery Team Chief will coordinate with the MOD Joint Aircraft Recovery and Transportation Squadron (JARTS) Aircraft Recovery Officer (ARO) after arriving at the crash site. The ARO will utilize 48 FW Crash Recovery personnel and resources to the fullest extent to recover the aircraft. Crash Recovery will remain under the direct command of the 48 FW.

8. Training and Certification Requirements for Crash Recovery Team Personnel.

8.1. Possess a valid AF Form 2293, *US Air Force Motor Vehicle Operator Identification Card*, as prescribed by AFI 24-301, *Ground Transportation*, and an AF Form 483, *Certificate of Competency*, as prescribed by DAFI 13-213, *Airfield Driving*.

8.2. Will be respirator fit-tested and qualified by the base Bioenvironmental Office due to the hazards associated with composite materials in any airframe. Additionally, personnel will be trained on the hazards associated with aircraft removal including the potential exposure of composite structures (e.g., broken flight control surface) not previously contained and/or during the cleanup of aircraft debris.

8.3. Will receive initial and annual crash recovery training IAW TO 00-80C-1, paragraph 2.3.2. and 2.3.2.2 and be updated in Integrated Maintenance Data System (IMDS). Training will be comprised of both academic and hands on training/exercise.

8.4. Will participate in an annual exercise. CRTCs will notify 48 FW/XP for coordination purposes.

8.5. Will be qualified on all Crash Recovery Equipment (pneumatic lifting bags, pneumatic lifting console, wheel skate, slings and other hoisting devices, aircraft jacks, and basic ground equipment).

8.6. Will participate in annual lift (crane or segmented bag) exercises. Where aircraft lifts are conducted to facilitate training/certification purposes, the Ground Instructional Training Aircraft (GITA) will be utilized.

9. Supplemental Procedures.

9.1. For Crash Recovery Response and Lifting Procedures reference LCL-48MXG-02 (F-15) and LCL-48MXG-32 (F-35). Note: Reference 48 FW IEMP, for response actions and responsibilities during peacetime major accidents/ incidents.

9.2. See Attachment 2, *Airfield Diagram*, for Arming/Dearming, Hot Brakes, and Hung Ordnance Areas.

JOSEPH L. CAMPO, Brigadier General, USAF
Commander, 48th Fighter Wing

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

48 FW Plan 10-2 *Installation Emergency Management Plan (IEMP)*, Jun 2021
DAFI 10-2501, *Emergency Management Program*, 17 Jun 2021
DAFI 13-213, *Airfield Driving*, 4 Feb 2020
DAFI 21-101, *Aircraft and Equipment Maintenance Management*, 16 Jan 2020
AFI 24-301, *Ground Transportation*, 22 Oct 2019
AFI 32-2001, *Fire and Emergency Services (F&ES) Program*, 28 Sept 2018
AFI 33-322, *Records Management and Information Governance Program*, 28 Jul 2021
AFI 48-137, *Respiratory Protection Program*, 12 Sept 2018
DAFI 91-204, *Safety Investigations and Reports*, 10 Mar 2021
AFPD 21-1, *Maintenance of Military Material*, 1 Aug 2018
LAKENHEATHI 11-250, *Airfield and Flying Operations* 15 June 2021
TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, 21 Jun 2021
TO 00-80C-1, *Crashed, Damaged, Disabled Aircraft Recovery Manual*, 17 Nov 2020
TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information (Emergency Services)*, 15 Oct 2021
TO 1F-15C/E-3-1, *Structural Repair Organizational and Intermediate*, 1 Sep 2021
TO 35D3-32-3-1, *Dolly, Disabled Wheel, Aircraft Towing Type MHU-104/E*, 13 Nov 2018
TO 35D5-5-7-1, *Pneumatic Bag, 15 Ton Capacity, Aircraft Lifting*, 4 Oct 2018
TO 35D6-1-106, *Aircraft and Engine Slings (General) and Restraining Devices for Aerospace Ground Equipment*, 26 Jun 2015

Prescribed Forms

None

Adopted Forms

AF Form 847, Recommendation for Change of Publication
AF Form 483, Certificate of Competency
AF Form 2293, US Air Force Motor Vehicle Operator Identification Card
AFTO Form 244, Industrial/Support Equipment Record

Abbreviations and Acronyms

AF—Air Force
AFTO—Air Force Technical Order
AFPD—Air Force Policy Directive
AFI—Air Force Instruction
AFMAN—Air Force Manual
AGE—Aerospace Ground Equipment
AMU—Aircraft Maintenance Unit
ARO—Aircraft Recovery Officer
BEF—Bioenvironmental Engineering Flight
CAF—Combat Air Force
CC—Commander
CDDAR—Crash Damaged Disabled Aircraft Recovery
CES—Civil Engineer Squadron
CEF—Civil Engineer Squadron Fire Department
CEX—Civil Engineer Squadron Emergency Management
CONS—Contracting Squadron
CRT—Crash Recovery Team
CRTC—Crash Recover Team Chief
CVI—Exercises, Inspection, and Readiness
DAFI—Department of the Air Force Instruction
DAFPD—Department of the Air Force Policy Directive
EMS—Equipment Maintenance Squadron
EOC—Emergency Operations Center
FGS—Fighter Generation Squadron
FW—Fighter Wing
FW/CC—Fighter Wing Commander
GE—Ground Emergency
GITA—Ground Instructional Training Aircraft
IAW—In Accordance With
IC—Incident Commander
IEMP—Installation Emergency Management Plan

IFE—In-Flight Emergencies

IFE/GE—In-Flight Emergency/Ground Emergency

IMDS—Integrated Maintenance Data System

JARTS—Joint Aircraft Recovery and Transportation Squadron

LRS—Logistics Readiness Squadron

MAA—Military Aviation Authority

MAPCM—Manual of Aircraft Post Crash Management

MDS—Mission Design Series

MOC—Maintenance Operations Center

MOD—Ministry of Defense

MXG/CC—Maintenance Group Commander

NATO—Northern Atlantic Treaty Organization

OPR—Office of Primary Responsibility PPE—Personal Protective Equipment

PPE—Personal Protective Equipment

RA—Resource Advisor

RAF—Royal Air Force

ROC—Recovery Operations Chief

SE—Support Equipment

TO—Technical Order

UCC—Unit Control Center

USAFE—United States Air Forces in Europe

Attachment 2 AIRFIELD DIAGRAM

Figure A2.1. Airfield Diagram.

