

**BY ORDER OF THE COMMANDER
RAF MILDENHALL (USAFE)**

RAF MILDENHALL INSTRUCTION

21-101

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Maintenance

**CRASH, DAMAGE OR DISABLED
AIRCRAFT RECOVERY (CDDAR)
PROGRAM**



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This publication implements Department of the Air Force Policy Directive (DAFPD) 21-1, *Maintenance of Military Materiel*. It establishes responsibilities and procedures for the performing CDDAR at Royal Air Force (RAF) Mildenhall as prescribed by Department of the Air Force Instruction (DAFI) 21-101, *Aircraft and Equipment Maintenance Management* and RAF Mildenhall Supplement 1. It applies to all units assigned to RAF Mildenhall. This instruction does not apply to Air National Guard or Air Force Reserve Command units. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFI 33-322, *Records Management and Information Governance Program*, and disposed of in accordance with the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional's chain of command. This publication may not be supplemented or further implemented/extended. See Attachment 1 for a Glossary of References and Supporting Information. Requests for waivers must be submitted with justification to publication OPR. The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Department of the Air Force.

SUMMARY OF CHANGES

This document has been revised and needs to be reviewed. Changes include the updating of publication references throughout and removed references to MILDI 13-204, *Airfield and Air Traffic Control Operations*. Procedures for hot brakes has been revised, as well as the vehicle/equipment requirements for 100th Civil Engineering.

1. Applicable Directives: Technical Order (TO) 00-80C-1, *Crashed, Damaged, Disabled Aircraft Recovery Manual* covers Air Force CDDAR procedures and the 100th Air Refueling Wing (ARW) Plan 91-1, *Mishap Response Plan*, and RAF Mildenhall Installation Emergency Management Plan 10-2, cover general CDDAR procedures for base personnel. This instruction outlines additional requirements for maintenance personnel.

2. Organizational Responsibilities:

2.1. 100th Maintenance Squadron (MXS) Repair and Reclamation (R&R) shall provide trained and qualified CDDAR team members and team chief for KC-135 (T)(W)(R)C-135S/U/V/W, CV-22, C-130 and transient aircraft and will supply KC-135 specific crash recovery equipment. In the event of an incident/accident involving a different Mission Design Series (MDS), R&R will provide general crash recovery equipment, support, and a crash recovery team at the direction of the Incident Commander (IC). The following organizations will provide qualified personnel with MDS specific equipment, technical expertise and support in the CDDAR process:

2.1.1. 100th Aircraft Maintenance Squadron (AMXS) will support assigned KC-135 aircraft, to include those supporting wing operations.

2.1.2. 352d Special Operations Wing will support Air Force Special Operations Command MC-130 (67 SOAMXS) and CV-22 (7 SOAMXS) aircraft.

2.1.3. For transient aircraft, Transient Alert will assist in communication with host/partner units with similar MDS aircraft (i.e. KC-135/100 AMXS, C-130/67 SOAMXS or CV-22 7 SOAMXS).

2.1.4. 95th Reconnaissance Squadron will support the CDDAR team (T)(W)(R)C-135S/U/V/W aircraft under their control.

2.1.5. RAF will support United Kingdom Rivet Joint aircraft under their control. 100 MXS R&R personnel will support as required.

2.2. 100th Maintenance Operations Flight Maintenance Operations Center (MOC) will run applicable CDDAR Quick Reference Checklist. 100 MOC will notify 100 MXS R&R sections of any actions requiring CDDAR support for RAF Mildenhall. 100 MOC will notify the 100 AMXS/MXS Production Supervisor and will also notify 100 ARW Command Post and 603d Air Mobility Division as necessary to notify appropriate Major Command of assistance for other MDS aircraft not listed above. 100 MOC will notify 95th Production Supervisor or MOC of the owning organization of MDS involved, as applicable. If not previously notified, the 100 MOC will notify the 352 SOW Special Operations Center (SOC), and the applicable MC-130/67 SOAMXS or CV-22/7 SOAMXS MOC.

3. Incident/Accident Requirements:

3.1. **The CDDAR team will consist of the following minimum requirements:** one CDDAR Team Chief, one Crane Operator (contracted as required), Crash Recovery Team Members (as required) and one Tow Vehicle and Operator (supplied by owning/responsible organization).

3.2. Personal Protective Equipment (PPE):

3.2.1. There are no composite materials on KC-135 aircraft and no special PPE is required when performing CDDAR duties on KC-135 aircraft. General purpose PPE, i.e. leather gloves, hard hats, etc. will be used at all times.

3.2.2. There are composite materials on many aircraft, such as the CV-22 and special PPE is required when performing CDDAR duties on aircraft containing composite materials. Special PPE, i.e. respirators, Tyvek® suits, over boots, etc. will be used at all times until the composite material is removed from the site. Bioenvironmental will determine required PPE during the recovery process.

3.2.3. In the event of a different MDS incident/accident where the potential for hazardous material exposure exists, CDDAR operations will not begin until the owning organization provides guidance for personnel and equipment to properly handle the hazards. NOTE: RAF Lakenheath's 48th Civil Engineer Squadron Explosive Ordnance Disposal Team may be requested through 100 ARW/CP for support in clearing explosives loaded aircraft as required before CDDAR operations begin.

4. Crash, Damage or Disabled Aircraft Recovery (CDDAR) Procedures:

4.1. **The CDDAR Team will consist of 100 MXS personnel from the R&R Section, assisted by personnel from applicable aircraft maintenance units.** Upon notification of an incident/accident from MOC, R&R Section will mobilize general and/or C-135 series aircraft crash recovery equipment and stand by for dispatch to the crash site when requested by the IC. If an incident occurs during normal duty hours, the shift supervisor will assemble the crash team. If the incident requires more personnel, a shop recall will be initiated. After normal duty hours, the R&R technician on standby will initiate a recall of required personnel. In accordance with 100 ARW Plan 91-1, *Mishap Response*, all mishaps are initially considered crime scenes under United Kingdom law; consequently, the local constabulary (e.g., Suffolk Police) has jurisdiction over any incident/accident. Jurisdiction will probably be handed over to 100 ARW once it has been established there's no HN involvement, but it should be noted that HN response to any mishap (as detailed in the UK Manual of Aircraft Post-Crash Management) is controlled through the UK Deputy Chief of Defence Staff's Duty Officer in the Ministry of Defence (MoD); it is therefore vital that any mishap is coordinated through the RAF Commander (RAF CC) or, in their absence, DCDSO. Off-base response will always be accomplished in coordination with the RAF CC: no USAF assets (including the 100 MXS CDDAR Team) should deploy to the scene without being requested by the UK Aircraft Post-Crash Management Incident Officer.

4.2. **Once a CDDAR team has been established, the Team Chief will assess the situation and begin organizing the required crash recovery equipment.** Transportation of equipment to the site will be requested through the IC. The Team Chief will report immediately to the IC for instructions.

4.3. **If the aircraft is disabled on the runway/taxiway and time permits, the IC will direct routine runway clearance operations.** If immediate removal is required, the IC may direct urgent clearance operations in accordance with 100 ARW Plan 91-1. When the aircraft is not on the runway and does not pose a danger to inbound aircraft, routine operations will apply. Under this condition, removal actions are taken to minimize damage to aircraft/equipment and to minimize danger to personnel.

4.4. **Blown tires:** Upon notification of a blown tire from MOC, the owning organization's Production Supervisor will immediately report to the IC. Blown tires should be handled in accordance with TO 4B-1-1, *Use of Landing Gear Wheel Brakes and Wheels During Ground Operations*. The owning organization is responsible for removing the aircraft from the disabled location. The 100 MXS R&R Section will report to the on-scene Production Supervisor to assist as needed in the event normal tire change procedures are not possible.

4.5. **Hot brakes:** When an aircraft suspects hot brakes, the aircraft will proceed directly to the nearest hot brake area located at the Runway 29 Alpha (northeast) and Bravo (southeast) Hammerheads and Runway 11 Bravo (southwest) Hammerhead. If the aircraft commander intends to shut down in place and egress, they will immediately notify the Tower. A CDDAR Team will be assembled and dispatched only if emergency runway/taxiway clearing is required. Procedures for handling hot brakes are outlined in TO 4B-1-1.

4.6. **Barrier engagements:** A CDDAR Team will be assembled and dispatched only if emergency runway/taxiway clearing is required.

4.7. **Gear up landing:** CV-22 gear up landing equipment will be stored/inspected by owning organization. Upon an In-Flight Emergency notification, the R&R CDDAR team will dispatch with owning organization to designated gear up landing site. The owning organization will be responsible to deliver CV-22 gear up recovery equipment to site. CDDAR team will assist equipment set-up. Team Chief will clear personnel from site and owning organization will marshal CV-22 onto recovery equipment. After engine shut down, the Team Chief will resume the recovery process.

5. **Crash, Damage or Disabled Aircraft Recovery (CDDAR) Training and Exercises:**

5.1. **All CDDAR team members shall receive annual training comprised of both academic and hands-on training/exercises.**

5.2. **Due to limited resources and costs, the use of consumable materials during training opportunities will be held to a minimum as long as proficiency to utilize said equipment can be demonstrated by the CDDAR team.**

5.3. **Partner units are encouraged to participate in 100 ARW exercises in order to obtain general CDDAR training.** 100 MXS/MXMT R&R will notify partner units of potential exercises in order to get max participation from tenant units.

5.4. **Exercises which are scheduled between base and civilian authorities will be utilized to the maximum extent possible for CDDAR training for difficult to reach areas such as water or mountain recovery, if available.**

5.4.1. Organizations CDDAR Team Chiefs are responsible for coordinating their units training requirements and with host tenant unit CDDAR Team Chiefs to maintain proficiency in accordance with TO 00-80C-1.

5.5. Initial CDDAR team training will be documented in the MyLearning Career Field Education and Training Plan or DAF Form 797. Annual training will be documented in the Maintenance Information System as applicable.

5.6. The 100 MXS/MXMT CDDAR Team Chief will update the 100 MXS Commander at least annually on the status and the results of joint host/partner unit training exercises.

6. Vehicle/Equipment Requirements:

6.1. 100 MXG will supply the following equipment and operators to support all CDDAR operations.

6.1.1. General Purpose truck (preferred, 6 pax 4x4) equipped with Land Mobile Radio.

6.1.2. Crane (if available) or locally contracted crane service.

6.1.3. Powered and Non-Powered Aerospace Ground Equipment as required, i.e. aircraft jacks, light carts, compressors, tow bars, etc.

6.1.4. 26 TON lifting bags and manifolds.

6.1.5. CDDAR Composite Tool Kit (CTK) equipped with slings, belly bands, snatch cables, chains, etc. Specific equipment is at the discretion of the 100 MXS/MXMT Flight Chief. Manage CDDAR CTK in accordance with DAFI 21-101, **Chapter 8.**

6.1.6. 100 AMXS, 352/7 SOAMXS and Transient Alert sections will supply tow vehicle and operator as required by IC or Team Chief.

6.2. 100th Logistics Readiness Squadron will supply special purpose vehicles and operators as requested by the IC or Team Chief.

6.3. 100th Civil Engineer Squadron will supply heavy earth moving equipment, operators, and materials to remove aircraft from a soft earth surface (i. e. plywood, portable runway, loose gravel) as requested and available by the IC or Team Chief.

6.4. Equipment not available on RAF Mildenhall should first be sourced from RAF Lakenheath. If still unavailable, rent the necessary equipment utilizing an emergency and special program code established by the 100th Comptroller Squadron or USAFE-AFAFRICA/FM. Coordinate with applicable Resource Advisor to ensure all expenditures are properly tracked for potential reimbursement. All potentially required equipment will be listed in 100 MXS CDDAR Team Chief continuity binder. Vendors equipment inventory and contact information will be reviewed quarterly.

7. General. Supervisors at all levels must recognize the sources of hazards and apply appropriate risk management measures to minimize or eliminate their effects, understanding that developing specific procedures for every possible emergency scenario is impossible. All crash recovery actions are coordinated through the emergency operations center to the IC and the Team Chief. During the recovery process the Team Chief or IC may appoint a qualified CDDAR team member to the emergency operations center as a liaison. Participation in wing crash recovery exercises and adherence to technical data and safety precautions are crucial to the success of CDDAR operations.

RYAN J. GARLOW, Colonel, USAF
Commander, 100th Air Refueling Wing

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

DAFPD 21-1, *Maintenance of Military Materiel*, 21 February 2024

DAFI 21-101, *Aircraft and Equipment Maintenance Management*, 20 December 2023

DAFI 21-101_MILDENHALLSUP, *Aircraft and Equipment Maintenance Management*, 22 March 2023

100 ARW Plan 10-2, *Installation Emergency Management Plan*, 28 July 2023

100 ARW Plan 91-1, *Mishap Response Plan*, 31 May 2023

TO 4B-1-1, *Use of Landing Gear Wheel Brakes and Wheels During Ground Operations*, 7 May 2021

AFI 33-322, *Records Management and Information Guidance Program*, 28 July 2021

TO 00-80C-1, *Crashed, Damaged, Disabled Aircraft Recovery Manual (ATOS-HILL)*, 21 June 2023

Prescribed Forms

None

Adopted Forms

DAF Form 797, *Job Qualification Standard Continuation/Command JQS*

DAF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AF—Air Force

AFI—Air Force Instruction

AFPD—Air Force Policy Directive

AMXS—Aircraft Maintenance Squadron

ARW—Air Refueling Wing

CDDAR—Crash, Damaged or Disabled Aircraft Repair

CTK—Composite Tool Kit

DAF—Department of the Air Force

DAFI—Department of the Air Force Instruction

DAFPD—Department of the Air Force Publication Directive

IC—Incident Commander

IFE—In Flight Emergency

MDS—Mission Design Series
MILDI—Mildenhall Instruction
MOC—Maintenance Operations Center
MOF—Maintenance Operations Flight
MXMT—Maintenance Flight
MXS—Maintenance Squadron
MXG—Maintenance Group
NCO—Non Commissioned Officer
OI—Operating Instruction
OPR—Office of Primary Responsibility
PPE—Personal Protective Equipment
QA—Quality Assurance
RAF—Royal Air Force
RS—Reconnaissance Squadron
R&R—Repair and Reclamation
SOG—Special Operations Group
SOAMXS—Special Operations Aircraft Maintenance Squadron
SOMXS—Special Operations Maintenance Squadron
SOW—Special Operations Wing
TO—Technical Order
USAFE—United States Air Forces in Europe