

**BY ORDER OF THE COMMANDER
YOKOTA AIR BASE**

YOKOTA AIR BASE INSTRUCTION 21-107

14 MAY 2012

Maintenance



**CRASHED, DAMAGED OR DISABLED
AIRCRAFT REPAIR (CDDAR)**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction applies to all 374th Airlift Wing (374 AW) host and tenant units. This instruction establishes and defines responsibilities and procedures for the recovery of crashed, damaged or disabled aircraft on the active runway adjoining taxiways or immediate vicinity as required by wing mission plans and local host-tenant agreements. It also implements applicable aircraft -2 and -3 Technical Orders (TO), TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information*, Yokota Air Base (AB) OPLAN 10-2, *Full Spectrum Threat Response*, Base OPLAN 32-1, applicable 48- and 91- Series AFOSHSTDs, TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information*, and 374 AW Mishap Response Guide 91-204. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) AFMAN 33-363, *Management of Records*, and disposed of IAW the Air Force Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afirms/afirms/afirms/rims.cfm>. 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 from the field through the appropriate functional's chain of command.

SUMMARY OF CHANGES

This document has been substantially revised and must be completely reviewed. Major changes include: Updates responsibilities; adds procedures for responding to a disabled aircraft with hot brakes and barrier engagement; and adds training procedures.

1. Policy.

1.1. The Crashed, Damaged or Disabled Aircraft Repair (CDDAR) program is established to recover damaged or disabled aircraft in minimum time to return Yokota AB to operational status as soon as practical after a mishap. The CDDAR program will be consistent with the following considerations:

1.1.1. The requirement to reopen the runway for operational use.

1.1.2. Prevention of secondary damage to the aircraft.

1.1.3. Preservation of evidence for mishap investigation.

1.1.4. Safety of personnel involved with recovery operations.

1.1.5. IAW AFI 91-204, *Safety Investigations and Reports*, when an aircraft is under investigation by the Interim Safety Investigation Board, recovery operations will not proceed until the board president releases the aircraft. Personnel who are not engaged in the investigation will remain outside of the recovery area. The crash recovery team may be called upon to perform tasks as required by the investigation team.

1.2. The CDDAR program instruction is procedural and will not take precedence over aircraft-specific technical data in recovery of crashed, damaged or disabled aircraft.

Warning: Transient aircraft servicing air logistics center (ALC) should be contacted to determine composite material risks and requirements for personal protective equipment (PPE) and special handling instructions. **Caution:** The aircraft and crash site will be disturbed only to the extent required to eliminate an imminently dangerous situation to the aircraft, support equipment and personnel, and will remain in an undisturbed state until the aircraft is released to maintenance by the incident commander.

2. Responsibilities.

2.1. 374th Maintenance Squadron (374 MXS) Maintenance Flight will:

2.1.1. Maintain a crash recovery trailer and equipment for home station and funded/provided unique Air Mobility Command (AMC) aircraft specific CDDAR equipment. Maintain inventories of specialized crash recovery tools, aircraft tow vehicle, tow bar, slings, belly bands, snatch cables, air bags, CDDAR kits and current TOs to meet expected crash recovery operations for home station and AMC supported aircraft. (AMC will provide/maintain Technical Data for all AMC peculiar aircraft.)

2.1.2. Provide personnel required to perform CDDAR operations.

2.1.3. Provide primary and alternate Crash Recovery Team Chiefs (CRTCs).

2.2. 374 MXS Repair & Reclamation (R&R)/Transient Alert (TA) Section will:

2.2.1. Manage the CDDAR program and ensure personnel are trained in recovery operations. Crash recovery team (CRT) composition and member duties are defined in Attachment 2 of this instruction.

2.2.2. Conduct CRT member training. Selected personnel will be trained for emergency and nonstandard towing procedures, standard and nonstandard aircraft lifting procedures,

wear of PPE, and broken and fire-damaged composite material containment, handling and disposal.

2.2.3. Establish a crash recovery and composite material handling training program. CDDAR personnel will accomplish annual training on Yokota AB assigned mission design series (MDS) and AMC supported aircraft. Actual aircraft emergencies can be substituted for the required training.

2.2.4. Maintain equipment assigned to the crash recovery program. Crash recovery equipment will be maintained in a ready-to-use condition and will receive the highest priority when maintenance is required.

2.2.5. Ensure CRT members are respirator fit tested by Bioenvironmental Engineering and receive annual recertification.

2.2.6. Maintain a current recall roster of all CRT personnel to include 730 AMS/UH-1/C-12 team members and provide current roster to 374 MOS and 374 MXS as required.

2.2.7. The CRT responsibilities will be assigned to the most qualified R&R/TA specialist on-scene. The CRT supervisor will:

2.2.7.1. Provide the incident commander with a roster of CRT personnel.

2.2.7.2. Be responsible for ensuring the aircraft is moved to the predetermined location, safely and expeditiously, using all resources available.

2.2.7.3. Maintain complete control of the aircraft and the removal procedure until it is moved to a predetermined location.

2.2.7.4. Maintain a continuity binder containing at a minimum, PPE guidelines, crash recovery checklists, event logs, and trailer equipment and tool inventories.

2.2.7.5. Perform crash recovery trailer serviceability inspections before and after each exercise and use. Monthly serviceability inspections will be documented on AFTO Form 244, *Industrial/Support Equipment Record*.

2.2.7.6. Perform inventory of all equipment and expendable items before and after each exercise and use. At a minimum, the inventory will be documented semi-annually.

2.2.7.7. Be prepared to provide equipment and or personnel to perform emergency tows.

2.2.7.8. Ensure applicable 374 AW organizations and tenant units participate in CDDAR exercises and training.

2.2.8. Respond to in-flight emergencies (IFEs) when assistance is required with at least two CRT members (CRT members will standby in recovery truck). In the event manning does not allow for a tow team to be standing by during IFE, the CRT lead will request production superintendents identify a tow team and the CRT will augment if required.

2.3. 374 MXS Aerospace Ground Equipment (AGE) Flight will maintain and deliver serviceable support equipment required to perform CDDAR operations (See Attachment 3).

2.4. 374 AW units will provide manpower and/or equipment, as required, to support the CRT. The following units will provide MDS-specific manpower and/or equipment for training and crash recovery, as required, by the CRTC.

2.4.1. 374th Aircraft Maintenance Squadron (374 AMXS) will support C-130 aircraft crash recovery with personnel as required, at the CRTC's request.

2.4.1.1. Provide maintenance representatives and/or manpower (crew chiefs and/or specialists) to provide technical advice and technical data relative to safety, operation or environmental hazards, when requested by the CRTC.

2.4.1.2. Take charge of any emergency tow situations in the event an aircraft without structural damage requires removal from the active runway, to include IFE situations, hot brakes, and blown or flat tires.

2.4.2. 374 MXG/MXQ will coordinate contractor support for incidents involving assigned C-12 and UH-1N aircraft.

2.4.3. Yokota Aero Club manager or the lead mechanic, DSN 225-8988/225-2912, will be contacted for Yokota Aero Club aircraft recovery.

2.4.4. 374 MXG Quality Assurance (QA)/730 AMS Quality Assurance (QA) (as required) will:

2.4.4.1. Ensure all aircraft AFTO Form 781-series documentation/historical records, servicing equipment, and personal training records obtained by 374th Maintenance Operations Squadron (374 MOS) are impounded upon notification of an accident/mishap IAW 374 AW Mishap Response Plan.

2.4.4.2. Inform the Maintenance Operations Center (MOC) to lock out (isolate) the Integrated Maintenance Data System/G081 maintenance information system on the affected aircraft.

2.4.4.3. Coordinate with transient aircraft home station QA to ensure the applicable Maintenance Information System is locked out (isolated) on the affected aircraft.

2.4.4.4. Assist in calculating weight and balance of aircraft if required.

2.4.5. 730th Air Mobility Squadron (730 AMS) will:

2.4.5.1. Provide personnel and equipment as necessary for training and recovery of AMC aircraft and assist with crash recovery operations with crew chief and specialist support.

2.4.5.1.1. Provide AMC aircraft specific equipment authorized in 751 or other applicable allowance standards, and personnel necessary for training and recovery of AMC aircraft. Augment crash recovery operations manning with crew chief and specialist support.

2.4.5.2. Provide tow team and tow vehicle as required per Memorandum of Agreement FB5209-03282-002 to support the CRT.

2.4.5.3. Take charge of all AMC emergency tow situations in the event an aircraft without structural damage requires removal from the active runway, to include IFE situations, hot brakes, and blown or flat tires.

- 2.4.5.4. Provide and maintain C-5, C-17 and KC-10 tow capability, and coordinate with 618 TACC/XOCL for the rapid deployment of crash recovery equipment and personnel for AMC aircraft.
- 2.4.5.5. The 730 AMS Contract Airlift Administration (730 AMS/CCK), DSN 225-9307, will coordinate with the on-station operations handling agent and owning airline for recovery assistance of civilian aircraft.
- 2.4.6. 374th Civil Engineer Squadron (374 CES) will:
- 2.4.6.1. Provide emergency crash and fire response, as well as hazardous materials and spill containment capability beyond the scope of the unit spill teams.
 - 2.4.6.2. Provide heavy equipment and operators (e.g., bulldozers, cranes (25-65 ton) and dump trucks) as required by the CRTC.
 - 2.4.6.3. Provide rapid runway repair and dunnage (6' x 6' x 8') as required by the CRTC. Provide the 374 MXS Repair and Reclamation Section an inventory of rapid runway repair material and dunnage on hand. (If materials are provided by local vendor then a signed copy of the contract need to be provided.
- 2.4.7. 374th Security Forces Squadron (374 SFS) will provide Security Forces personnel to secure mishap scene and the wreckage assembly point as directed by the incident commander.
- 2.4.8. 374th Logistics Readiness Squadron (374 LRS) will:
- 2.4.8.1. Provide tractor trailers with flatbeds and forklifts, as necessary, to transport CDDAR support equipment to the mishap site, as well as transport wreckage to the wreckage assembly point.
 - 2.4.8.2. Provide maintenance support to heavy equipment participating in the recovery operation as directed by the incident commander. (If heavy equipment is provided by local vendor then a signed copy of the contract needs to be provided.)
 - 2.4.8.2.1. Maintain required minimum essential level (MEL) of serviceable tow vehicles, and report shortages to PACAF/AMC, and fill shortages with War Ready Material (WRM) or backfill assets.
 - 2.4.8.3. Provide on-scene fuel servicing of recovery support equipment, to include aerospace ground equipment (AGE) and heavy equipment.
- 2.4.9. The MOC will:
- 2.4.9.1. Notify the R&R Section during IFEs, barrier engagement and hot brake conditions. If the R&R Section cannot be reached after normal duty hours, the 374 MXS Production Superintendent will be contacted to determine the crash recovery response actions.
 - 2.4.9.2. Assist on-scene maintenance representatives by coordinating with other units and/or agencies as required.
 - 2.4.9.3. Notify the 374 MOS Plans, Scheduling and Documentation Section (374 MOS/MXOOP) to gain possession of crashed aircraft IAW AFI 21-103, *Equipment Inventory, Status and Utilization Reporting*.

2.4.9.4. Notify the appropriate headquarters and owning organization after initial response by the CRT. In the event a wide-bodied aircraft becomes disabled at Yokota AB, the MOC will notify the Headquarters Pacific Air Forces Maintenance Engineering Division (HQ PACAF/A4M) through the PACAF Command Center, DSN 315-948-8500, and also request assistance through the following points of contact:

2.4.9.4.1. E-4: 55 MOC, Offutt AFB, Nebraska, DSN 312-271-5147/48.

2.4.9.4.2. AMC aircraft: Tanker Airlift Control Center (TACC), Scott AFB, Illinois, DSN 312-576-1706; 613 AOC/AMD, Hickam AFB, HI, DSN 315-448-8856

3. Procedures.

3.1. Upon declaration of a potential or actual major aircraft accident on the runway or off base, including water recovery, the following sequence of events will occur. All accident response agencies are notified according to Yokota Comprehensive Emergency Management Plan 10-2.

3.1.1. Upon notification of an aircraft mishap requiring recovery of a damaged or disabled aircraft, the MOC will:

3.1.1.1. Notify 374 MXS Production Superintendent and if AMC aircraft, notify 730 AMS Production Superintendent as applicable of the requirement to recall and assemble the CRT at a designated point.

3.1.1.2. When responding to a disabled aircraft with hot brakes and barrier engagement, the CRTC will coordinate with the base fire department and refer to checklist, LCL "*374 MXG-10 Aircraft Hot Brakes Response*," to ensure the aircraft is in a safe condition before proceeding with removal procedures.

3.1.1.3. Upon request of the incident commander or CRTC, contact the transient aircraft home base and request technical order guidance for aircraft recovery operations.

3.1.1.4. Dispatch the CRT to the accident scene via a designated safe route as requested by and in coordination with, the incident commander.

3.1.1.5. In the event an aircraft recovery requires movement of cargo by normal or alternate means, the MOC will contact the 730 AMS/TR and the Emergency Operations Center (EOC).

3.1.2. The 374 MXS Production Superintendent and if AMC aircraft, 730 AMS Production Superintendent as required, will execute the CDDAR team recall procedures and pass along all known information.

3.1.3. The CRTC will:

3.1.3.1. Assemble the CRT at a designated meeting area with the immediate response trailer.

3.1.3.2. Notify the EOC and MOC of assembly completion time.

- 3.1.3.3. Notify the vehicle management flight dispatch office of a possible requirement to move the crash recovery trailer and equipment.
 - 3.1.3.4. Brief the CRT on the situation, possibility of human remains, and importance of not touching or disturbing the scene, and all known safety hazards.
 - 3.1.3.5. Monitor the designated crash net, review safety procedures and aircraft technical data, and stand by until requested by the incident commander to proceed to the accident scene.
 - 3.1.3.6. Respond to the accident scene when requested, obtaining approval from incident commander or safety representative, and confirm with Bioenvironmental Engineering to ensure the area is safe for entry.
 - 3.1.3.7. Obtain verification from the incident commander and Explosive Ordnance Disposal (EOD) representative that all explosive items have been made safe or removed as applicable.
 - 3.1.3.8. Assess site with the incident commander, configure the aircraft and begin recovery actions.
 - 3.1.3.9. Ensure the first maintenance responders to the aircraft pull the cockpit voice recorder circuit breakers if the aircraft is deemed safe by the incident commander.
- 3.2. Designated individuals from the mishap aircraft organization will ensure the following ground handling procedures are complied with:
- 3.2.1. Disconnect batteries.
 - 3.2.2. Drain oil and fuel from tanks if required.
 - 3.2.3. Remove liquid oxygen if required.
- 3.3. Crash Recovery operations in difficult to reach areas will be coordinated through the incident commander and EOC. Several base resources may be needed to ensure the appropriate equipment and personnel can be taken to the crash site in a timely manner.
- 3.4. All personnel entering the crash site will wear proper PPE IAW the site safety and health plan. Units are responsible for providing their personnel with proper PPE.
- 3.5. Recovery and removal of aircraft and aircraft parts will be IAW AFI 91-204 to ensure preservation of evidence for safety and/or accident investigation boards.

4. Training.

- 4.1. **All recovery team members must receive initial/annual training comprised of both academic and hands-on training/exercises.** Hands-on training includes aircraft lifting exercises using a unit owned aircraft or AMC transient aircraft coordinated with 730 AMS.
- 4.2. **All training events will be conducted by a CRTC and/or an AMC aircraft subject matter expert (SME) from Yokota AB, Japan.** Academic training will be conducted by Air Education and Training Command (AETC) Training Detachments (TD) at bases with an assigned TD using an approved Plan of Instruction. It is critical that members ensure all training

is documented in Training Business Area (TBA) and GO81 upon completion. Operational aircraft will not be used for actual aircraft lifts for training events.

4.3. 3 Personnel that were previously qualified and actively serving in a CDDAR capacity are exempt from attending the AETC CDDAR training course. Units are highly encouraged to schedule these personnel for this training as workload permits.

WILLIAM M. KNIGHT, Colonel, USAF
Commander, 374th Airlift Wing

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

AFOSHSTD 91-100, *Aircraft Flight Line –Ground Operations and Activities*, 1 May 1998

AFOSHSTD 91-501, *Air Force Consolidated Occupational Safety Standard*, 17 July 2004

TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information*, Revision 11, 1 February 2006

AFI 21-103, *Equipment Inventory, Status and Utilization Reporting*, 26 January 2012

AFI 91-204, *Safety Investigations and Reports*, 24 September 2008

Yokota AB Comprehensive Emergency Management Plan 10-2, 30 July 2008

374 AW Mishap Response Guide 91-204, *Mishap Response*

Adopted Forms

AF Form 797, *Job Qualification Standard Continuation/Command Jqs*

AF Form 847, *Recommendation for Change of Publication*

AFTO Form 244, *Industrial/Support Equipment Record*

Abbreviations and Acronyms

AFOSH STD—Air Force Occupational Safety and Health Standard

AGE—Aerospace Ground Equipment

AMXS—Aircraft Maintenance Squadron

CDDAR—Crashed, Damaged or Disabled Aircraft Repair

CES—Civil Engineer Squadron

CRT—Crash Recovery Team

CRTC—Crash Recovery Team Chief

EOC—Emergency Operations Center

EOD—Explosive Ordnance Disposal

IAW—In Accordance With

IFE—In-Flight Emergency

LRS—Logistics Readiness Squadron

MDS—Mission Design Series

MOC—Maintenance Operations Center

MOS—Maintenance Operations Squadron

MXS—Maintenance Squadron

PPE—Personal Protective Equipment

R&R—Repair & Reclamation

TA—Transient Alert

TACC—Tanker Airlift Control Center

Attachment 2**MINIMAL CRASH RECOVERY TEAM POSITIONS AND DUTIES (SEE NOTE)****A2.1. Crash Recovery Team Chief (1 each).**

- A2.1.1. Coordinate, lead, direct crash recovery operation, including placement of equipment.
- A2.1.2. Brief safety and scenario situation/concerns.
- A2.1.3. Assist agency officials in recovery method determination.
- A2.1.4. Assemble information from BIO and Fire Department officials on site hazards and brief team members.

A2.2. Inflation Bag Control Console Operator (3 each).

- A2.2.1. Inspect, monitor and operate control console before and during lifting operation.
- A2.2.2. Direct hose to inflation bag connections during inflation and deflation operations.
- A2.2.3. Assist in equipment placement, removal and area cleanup.
- A2.2.4. Spreader beam guide line operator during crane lift.

A2.3. Observer (3 each).

- A2.3.1. Monitor aircraft height/plumb bob during lifting and report back to the CRTC and/or console operator.
- A2.3.2. Assist in equipment placement, removal and area cleanup.

A2.4. Equipment Custodian (2 each).

- A2.4.1. Monitor, control and issue all dispatched crash recovery equipment.
- A2.4.2. Clean, inventory and account for issued equipment/material.
- A2.4.3. Assist team as needed.

A2.5. Equipment Handlers (4 each).

- A2.5.1. Assist in dunnage/cribbing/jack placement.
- A2.5.2. During bag lift, monitor bag/jack progress.
- A2.5.3. Assist in equipment placement, removal and area cleanup.

A2.6. Crane operator (1 each).

- A2.6.1. Coordinate with team chief the placement of crane and rigging method for recovery operation.
- A2.6.2. Operate crane during all phases of aircraft lift and movement.

Note: Requirements for C-130, C-12, UH-1 helicopters, Aero Club aircraft or wide-body aircraft will require additional members supplied by the 730 AMS, contractors or 374 AMXS.

Attachment 3

MINIMUM CRASH RECOVERY EQUIPMENT/VEHICLE LIST

Table A3.1. Minimum Crash Recovery Equipment/Vehicle List

Small Aircraft (less than 75K, C-21, etc.)			Medium Aircraft (75K-200K, C-130, etc.)			Large Aircraft (over 200K, C-17, KC-135, C-5 etc.)		
1.	ea	Wheel dolly	1.	4ea	Tethering kit	1.	8ea	Tethering kit
2.	1ea	Spill response kit	2.	1ea	Spill response kit	2.	1ea	Spill response kit
3.	2ea	Lifting sling	3.	2ea	Lifting sling	3.	2ea	Lifting sling
4.	2ea	Airbag 15-ton	4.	2ea	MC-7 air compressor	4.	2ea	MC-7 air compressor
5.	2ea	Airbag 26-ton	5.	4sets	Airbag 26-ton	5.	8sets	Airbag 26- ton(MXS/AMC)
6.	2ea	MC-7 air compressor	6.	2sets	Airbag 15-ton	6.	4sets	Airbag 15- ton(MXS/AMC)
7.	4ea	Control Console	7.	3ea	Control console	7.	5ea	Control console
8.	1ea	Crane 25ton (CE)	8.	1ea	Crane 25/65 ton (CE)	8.	1ea	Crane/Spreader bar
9.	1ea	Spreader bar	9.	1ea	Spreader bar	9.	1ea	Crash trailer
10.	1ea	Crash trailer	10.	1ea	Crash trailer	10.	1ea	15K forklift (LRS)
11.	1ea	15K forklift (LRS)	11.	1ea	15K forklift (LRS)	11.	1ea	40' low-boy trailer with tractor (LRS)
12.	1ea	40' low-boy trailer with tractor (LRS)	12.	1ea	40' low-boy trailer with tractor (LRS)	12.	1ea	General purpose radio-equipped truck
13.	1ea	General purpose radio-equipped truck	13.	1ea	General purpose radio- equipped truck	13.	1ea	Aircraft tow vehicle
14.	1ea	Aircraft tow vehicle	14.	1ea	Aircraft tow vehicle	14.	350ea	Dunnage (CE)
15.	50ea	Dunnage (CE)	15.	200ea	Dunnage (CE)			

Note 1. These are minimum requirements and should not be assumed all-encompassing. Add MDS-specific equipment as required.

Note 2. This list should not cause lowered Allowable Source Code requirements.

Assumptions 1. Additional time may be required to obtain necessary equipment that is not listed.

Assumptions 2. Common equipment (e.g., aircraft jacks, tow bars, -86 generator, light cart, heater) is not listed but may be required depending on the conditions of the crash site.

Assumptions 3. This list does not include ancillary equipment or supplies that may be required during a crash recovery (e.g., hand tools, PPE, consumables).