

**BY ORDER OF THE COMMANDER
3RD WING (PACAF)**

3RD WING INSTRUCTION 21-132

11 APRIL 2008

Certified Current 20 April 2012

Maintenance

**CRASH RECOVERY/HOT BRAKE
PROCEDURES**



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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RELEASABILITY: There are no releasability restrictions on this publication.

OPR: 3 EMS/MXMTR

Certified by: 3 MXG/CC (Col Michael P. Arceneaux)

Supersedes: 3WGI 21-132, 8 October 2006

Pages: 6

This instruction implements AFD 21-1, *Managing Aerospace Equipment Maintenance*, and is used in conjunction with AFI 21-101, *Aircraft Maintenance Organization and Procedures*; AFI 21-101 CAF sup 1, *Aircraft Maintenance Organization and Procedures*; AFI 21-101 3 Wing Sup 1, *Aircraft Maintenance Organization and Procedures*; AFI 21-103, *Equipment Inventory, Status and Utilization Reporting*; 3 Wing FSTR Plan 10-2; 3 Wing OPLAN 32-1; 3 Wing 91-1, *Investigation & Reporting Plan for Flight, Ground and Weapons Mishaps*; 3WGI 13-203, *Airfield and Air Traffic Control Procedures*; AFMAN 32-4004, *Emergency Response operations*, TO 00-105E-9, *Emergency Rescue and Mishap Response Information*; AFOSH STD 48-137, *Respiratory Protection Program*; AFOSH STD 91-100, *Aircraft Flight Line-Ground Operations and Activities*; AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*; TO 4B-1-1, *Use of Landing Wheel Brakes and Wheels During Ground Operations* and applicable aircraft specific Dash 2 and Dash 3 series TOs. It establishes responsibilities and procedures for recovery of crashed and disabled aircraft. This instruction applies to maintenance activities within the 3rd Wing but does not apply to the US Air Force Reserve or Air National Guard units and members. Refer recommended changes and questions about this publication to the OPR (see **Attachment 1**) using the AF Form 847, *Recommendation for Change of Publication*. Route the AF Form 847 through the appropriate chain of command. Official records created as a result of this publication will be maintained under the disposition authority of the Air Force Records Information Management System (AFRIMS), Records Disposition Schedule (RDS), Table 21-14, Rule 2 or other disposition authority from the applicable (21 Series) tables.

SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. This version incorporates updated guidance and procedures from AFI 21-101 on crash recovery/hot brake procedures. Revised responsibilities throughout and redefined the duties for Equipment Maintenance Squadron and the

Maintenance Flight. Deleted miscellaneous verbage and rewrote definitions to correlate with newer technology standards.

1. General. The commander of the 3rd Equipment Maintenance Squadron (3 EMS) has the primary responsibility for conducting crash recovery operations, as directed by the 3rd Maintenance Group Commander. The 3rd EMS R&R Section is primarily responsible for the following airframes: F-15C/D, F-22, C-17, C-12, and E-3 AWACS. The Maintenance Operations Center (MOC) will implement the maintenance group commander's instructions and will request support as required. Equipment Maintenance Supervision will develop crash recovery procedures in coordination with the Fire Department, Civil Engineering, Readiness, EOD, Security, BEE, Airfield Management, and 3rd Wing Safety.

2. Base Organization Crash Damaged or Disabled Aircraft Recovery (CDDAR) Responsibilities:

2.1. Civil Engineer will provide:

2.1.1. Initial response via the Fire Protection Flight. The Senior Fire Official will be Incident Commander (IC) until the aircraft is deemed fire safe and incident command is transferred.

2.1.2. Explosive ordnance disposal (EOD) Technicians for the safing of any explosive devices that are loaded/installed on the aircraft.

2.1.3. Assistance to Crash Recovery with equipment and skills within unit capability and beyond those of Crash Recovery for the purposes of aircraft removal and/or site clean-up.

2.1.4. Assistance in coordinating clean-up procedures and make notifications as necessary to ensure compliance with governing environmental laws.

2.2. Security Forces will provide personnel to set up safety cordons and provide security for incident site.

2.3. Bio-Environmental Engineering (BEE) will provide expertise to ensure safety of personnel entering and working in the site.

2.4. Airfield Manager will provide any services to Crash Recovery, as needed, as it pertains to the airfield/aerodrome.

2.5. The 3rd Wing Safety will coordinate with the IC for mishap evidence preservation.

2.6. Transient Alert will work with Crash Recovery personnel for the safe recovery of transient aircraft.

3. Procedures:

3.1. Base Operations will notify MOC and repair and reclamation (R&R) via the secondary crash net whenever there is an in-flight emergency, ground emergency or hot brake condition.

3.2. MOC will record the condition, type of aircraft, tail number, location, armament, total fuel remaining, and time of notification.

3.3. MOC will notify 732nd Air Mobility Support Squadron (552-3258) to ensure appropriate checklists are initiated for heavy aircraft (C-130, C-141, C-17, C-5, KC-135 and KC-10).

3.4. The R&R shop supervisor, after assessing the situation, will dispatch the specific required equipment.

4. Crash Recovery Procedures:

4.1. Equipment Maintenance Supervision will:

4.1.1. Provide a maintenance officer/senior noncommissioned officer (SNCO) to act as crash damaged or disabled aircraft recovery CDDAR team chief.

4.1.2. Provide a crash recovery team of at least three members from the R&R shop to respond to aircraft emergencies. The crash recovery team will consist of a recovery team supervisor, vehicle operator and team member. The EMS Crash Recovery team supervisor will determine if additional personnel are needed. EMS Crash Recovery personnel will not approach an emergency aircraft until cleared by the on-scene Senior Fire Official.

4.2. The Maintenance Flight Chief will:

4.2.1. Maintain crash recovery teams on duty during scheduled local flying hours. The teams will consist of at least three qualified team members. During non-flying periods, the crash recovery team will be on standby status. The standby crash recovery team is the weekend duty crew for that week. Upon notification by the MOC, the standby crash recovery team will respond.

4.2.2. Ensure transient aircraft maintenance personnel are trained to provide response as interim crash recovery team during non-flying periods until the standby crash recovery team is available.

4.2.3. Ensure R&R is assigned essential crash recovery equipment.

4.3. The EMS R&R Section Chief will:

4.3.1. Perform duties as crash recovery team chief/crash super on wing assigned and transient aircraft.

4.3.2. Provide personnel protective equipment (PPE) as determined by technical order or applicable AFOSH STDs and have custodial responsibility for crash recovery equipment. PPE will be coordinated with BEE. In the event of composite mishap response, refer to 3WGI 21-109, *Advanced Composite Materials Mishap Response*, for additional PPE requirements.

4.3.3. Ensure all crash recovery equipment is serviceable and available for use. As a minimum for CDDAR response, the crash trailer, tow vehicle, tow bar and crane will be readily available at all times. The crash recovery team chief will coordinate with wing agencies for any other equipment required for a recovery operation. Notify MXG/CC, in writing, whenever primary crash recovery equipment is out of commission. MOC will be notified by telephone.

4.3.4. Maintain airfield maps in all crash recovery vehicles.

4.3.5. Coordinate with C-17, E-3 and, C-12 units for equipment and personnel peculiar to their specific aircraft for use in a crash recovery situation. If required, contact the following: C-17 Boeing, DSN 753-5824; C-12 Elmendorf, DSN 552-3916; prior to any recovery operation of an E-3 aircraft, Oklahoma City ALC will be notified at DSN 336-2374.

4.3.6. During on-base recovery, the crash supervisor will:

4.3.6.1. Report to the IC and stand by until the IC, with the coordination of the safety representative and the accident board president, indicates the aircraft is safe for recovery.

4.3.6.2. Coordinate with any agencies the crash supervisor requires to perform recovery operations. These can include EOD, Civil Engineering, LRS, Bio, Security Forces, Airfield Manager or any other agency as applicable.

4.3.6.3. Conduct a crew briefing stating specifically what is to be done, how it will be done, and assign specific responsibilities to each recovery crew member. For any lifting operation (sling or airbag) utilize 3 MXG QA aircraft lifting safety briefing checklist.

4.3.6.4. Remove personnel who are not involved in the recovery operations or safety surveillance.

4.3.6.5. Ensure the wreckage is removed from the runway in minimum time commensurate with requirements to reopen the runway for operational use, prevent unnecessary secondary damage to aircraft, and preserve evidence for the accident investigation.

4.3.6.6. Notify MOC when recovery operations are complete.

4.3.7. During off-base recovery:

4.3.7.1. Respond at the request of the Incident Commander after the crash site has been located.

4.3.7.2. Determine the personnel and equipment required to remove the wreckage.

4.3.7.3. Advise MOC of requirements for personnel, equipment, transportation, and housing when the mishap aircraft has been released for recovery.

4.4. MOC will:

4.4.1. Make radio contact with the crash recovery team and enforce radio discipline during the crash recovery operation.

4.4.2. Obtain support and equipment as requested by the crash recovery supervisor from other base agencies and the United States Army at Fort Richardson.

4.4.3. Ensure radio traffic on all nets is held to essential transmissions during emergencies.

5. Hot Brakes Procedures:

5.1. There are no mechanical means to determine if an aircraft has hot brakes (TO 4B-1-1, *Use of Landing Wheel Brakes and Wheels During Ground Operations*) therefore hot brakes can only be declared by the aircraft commander (AC) or Crash Recovery personnel. Upon notification of suspected hot brakes:

5.1.1. If the aircraft is on rollout, the tower will direct the aircraft to taxi to the nearest hot brake area in accordance with 3WGI13-203, *Airfield and Air Traffic Control Procedures*. If the aircraft is already at EOR, the aircraft will remain in position and personnel will evacuate the area.

5.1.2. If hot brakes are suspected, the brakes will not be checked until 10 minutes have passed since the last application of brakes due to heat transfer from the brakes to the wheel assemblies.

5.1.3. Fire department or Crash Recovery personnel will chock the aircraft. Personnel will approach an aircraft with suspected hot brakes from a forward or aft direction. Crash Recovery personnel will check the aircraft brakes for excessive heat after the 10 minute wait period for heat build up has passed and determines if brakes are hot. Fighter aircraft engines will not be shut down unless directed by the IC.

5.1.4. If the AC or Crash Recovery personnel declare hot brakes, the aircraft will remain in the designated area for 30 minutes to allow adequate cool-down time in accordance with TO 4B-1-1, *Use of Landing Wheel Brakes and Wheels During Ground Operations*. All personnel will stay

clear of an area extending 300 feet in a 45 degree angle on both sides of the wheel until the brakes have cooled or the thermal release plugs have deflated the tires.

5.1.5. The Senior Fire Officer on scene will direct a fire vehicle to remain with the aircraft for the allotted cool-down time.

5.1.6. Aircraft may taxi back to the designated parking area after the allotted cool-down time.

5.2. Host unit C-17, E-3, and C-12 personnel will tow their aircraft to the designated parking spot after the allotted cool-down period if engines are shut down. Heavy aircraft may shut down for evacuation purposes. The 732nd AMS will be responsible for towing all AMC aircraft back to the designated parking spots.

5.3. The crash recovery team will tow all other aircraft back to its designated parking spot if engines are shut down after the allotted cool-down period.

6. Barrier Engagements:

6.1. Fire department personnel will ensure the aircraft is fire safe and chocked. Fire department personnel will then turn control of the aircraft over to the Crash Recovery team supervisor for barrier extraction.

6.2. In accordance with AFI 32-1043 alternate extraction procedures are commonly referred to as “slingshotting” the aircraft. Potential for aircraft damage is high when using these methods; therefore, use these procedures only during contingencies when conditions warrant rapid cycling of the arresting system.

6.3. The crash recovery team will safe the aircraft, shut down engines, and tow the aircraft clear of the barrier, as required.

6.4. For the purpose of towing the aircraft off the active runway, the crash recovery team will safe, as a minimum, the aircraft landing gear and all live forward firing ordnances. Immediately upon exiting the active runway, the tow team will stop the aircraft and all remaining safeing operations will be completed prior to towing the aircraft to its designated parking spot.

7. Forms Adopted:

7.1. **Adopted:** AF Form 847, *Recommendation for Change of Publication*.

THOMAS L. TINSLEY, Brigadier General, USAF
Commander

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

AFPD 21-1, *Managing Aerospace Equipment Maintenance*.

AFI 21-101, *Aircraft Maintenance Organization and Procedures*.

AFI 21-101CAF Sup 1, *Aircraft Maintenance Organization and Procedures*.

AFI 21-101/W g Sup 1, *Aircraft Maintenance Organization and Procedures*.

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

AFI 32-2001, *The Fire Protection Operations and Fire Prevention Program*.

AFMAN 32-4004, *Emergency Response operations*.

3WGI 13-203, *Airfield and Air Traffic Control Procedures*.

3WGI 21-109, *Advanced Composite Materials Mishap Response*.

AFOOSH STD 48-137, *Respiratory Protection Program*.

AFOOSH STD 91-100, *Aircraft Flight Line-Ground Operations and Activities*.

3 WG OPLAN 91-1, *Investigation & Reporting Plan for Flight, Ground and Weapons Mishaps;*

TO 00-105E-9, *Emergency Rescue and Mishap Response Information*.

TO 4B-1-1, *Use of Landing Wheel Brakes and Wheels During Ground Operations*.

Abbreviations

AC— Aircraft Commander.

AFRIMS— Air Force Records Information Management System.

BEE— Bio-Environmental Engineering.

CDDAR— Crash Damaged or Disabled Aircraft Recovery.

EOD— Explosive Ordnance Disposal.

IC— Incident Commander.

MOC— Maintenance Operations Center.

OPR— Office of Primary Responsibility.

PPE— Personnel Protective Equipment.

RDS— Records Disposition Schedule.

R & R— Repair and Reclamation.

SNCO— Senior Noncommissioned Officer.