

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

**RAMSTEIN AIR BASE INSTRUCTION
21-201**



3 DECEMBER 2015

Maintenance

***CONTROL, HANDLING, AND
TRANSPORTING OF MUNITIONS AND
HANDLING OF EXPLOSIVES-LOADED
C-130J AIRCRAFT***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This wing operating instruction implements Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*, Air Force Instruction (AFI) 21-101, *Aircraft and Equipment Maintenance Management*; **Chapter 13**, *Mobility Aircraft Defensive Systems Loading Policy*. Establishing specific guidelines for C-130J aircraft configured with chaff/flare munitions for Aircraft Defensive Systems (ADS). These systems use class/division 1.3 and 1.4 explosives, which require special handling and coordination. The following procedures must be accomplished to ensure explosives are handled safely and expeditiously while on Ramstein Air Base or at a deployed location. All personnel working around explosives-loaded aircraft must be trained and familiar with the hazards involved. The goal is to enhance safety by exposing the minimum number of people to the minimum amount of explosives for a minimum amount of time. This instruction applies to the 86th Maintenance Group and 86th Operations Group. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Disposition Schedule (RDS), located in Air Force Records Information Management System (AFRIMS): <https://www.my.af.mil/gcss-af61a/afrims/afrims/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 Publications*.

SUMMARY OF CHANGES

The addition of munitions storage in the AMXS Modular Ammunition Storage Magazine (ARMAG) on ramp 1 has been included to this instruction.

1. Safety

1.1. Flares handled by 86th AMXS personnel are explosive Class/Division 1.3/G and 1.4/G, Department of Transportation (DOT) Class B, in accordance with (IAW) *Joint Hazard Classification System*.

2. Maintenance Precautions on Explosives-Loaded Aircraft

2.1. Vehicles and equipment directly involved with uploading/downloading operations will be kept at a distance of 25 feet from explosives and handling operations. Vehicles not involved with the loading operation will keep a minimum distance of 50 feet from explosives and loading operations.

3. Mishap Notification and Emergency Action

3.1. Mishap Notification Procedures

3.1.1. When a mishap occurs involving explosives, immediately notify the Additional Duty Weapons Safety Representatives (ADWSR), the 86 Maintenance Operation Center (MOC) and the 86 AMXS Production Superintendent.

3.1.2. MOC will notify the Command Post, Fire Department, Explosive Ordnance Disposal (EOD), Base Operations, Security Forces, and 86 AW/SEW.

3.2. Emergency Actions

3.2.1. If fire is involved:

3.2.1.1. All non-essential personnel will evacuate to the withdrawal distance in accordance with **Table 1** using the highest hazard class involved in the mishap.

3.2.1.2. Notify MOC with the aircraft tail number, location, amount of explosives involved, and the fire symbol. MOC will notify the Fire Department.

3.2.1.3. If possible, remove all munitions not engulfed in flames from the area.

3.2.1.4. If munitions become engulfed in flames, record the time, stop fighting the fire, and evacuate to the withdrawal distance in accordance with **Table 1** using the highest hazard class involved in the mishap.

3.2.2. If an un-commanded launch of munitions occurs:

3.2.2.1. Once the aircraft is cleared and upon arrival to final parking, qualified Electronic Countermeasures (ECM) will ensure safety pins are installed and system is off prior to downloading aircraft chaff/flare. Once munitions are downloaded IAW T.O. 1C-133J-33-1-2 of T.O. 1C-130J-33-1-2CL-1, the aircraft is considered safe and cargo can be downloaded.

3.2.3. If a hung flare or unknown condition exists:

3.2.3.1. Once MOC is notified they will contact Command Post who will notify EOD, 86 AW/SEW, and the Fire Department for response to applicable aircraft. MOC will also notify MXG/QA and the 86 AMXS Production Superintendent.

3.2.3.2. Engines will be shut down immediately and the aircraft will be chocked.

3.2.3.3. Aircrew and all non-essential personnel will evacuate to the withdrawal distance in accordance with **Table 1** using the highest hazard class involved in the mishap.

3.2.3.4. EOD will secure the area around the aircraft and will download the hung munitions.

3.2.3.5. The aircraft will then be towed to an aircraft parking spot.

Table 1. Fire Division Hazards and Actions

<u>Fire Div.</u>	<u>Materials</u>	<u>Hazard</u>	<u>Actions/Remarks</u>
3*	HD 1.3	Mass fire, minor blast of fragment	<ol style="list-style-type: none"> 1. May be fought if explosives are not directly involved. 2. If White Phosphorus (WP) munitions are involved, smoke is liberated. <ol style="list-style-type: none"> a. WP munitions may explode. b. Immerse Phosphorus in water or spray with water continuously. 3. Fires involving Hexachlorethane (HC) and incendiaries use dry sand or dry powder in the early stages. 4. For fires involving pyrotechnics and magnesium incendiaries. <ol style="list-style-type: none"> a. Protect adjacent facilities and equipment. b. Do not use carbon dioxide, Halon extinguishers or water on or near munitions. c. Allow magnesium to cool unless upon flammable material. In this case, use a 2-inch layer of dry sand or powder on the floor and rake the burning material onto this layer and re-smother.

4*	HD 1.4	Moderate fire, no significant blast or fragment	1. Fight these fires. 2. Expect minor explosions and hot fragments.		
*Typical C-130J Munitions Characteristics					
<u>Fire Div.</u>	<u>Haz Class</u>	<u>Noun</u>	<u>NEW/Lbs.</u>	<u>Max Qty.</u>	<u>Withdrawal Distance</u>
3	1.3/G	M206 Flare	0.2840	240	600 ft
3	1.4/G	M211 Flare	0.0008	120	600 ft
3	1.4/G	MJU-50/B Flare	0.0008	240	600 ft
3	1.4/G	MJU-64/B Flare	0.0008	120	600 ft
4	1.4/S	RR-170 Chaff	0.0008	180	300ft
4	1.4/S	RR-180 Chaff	0.0008	180	300ft
<u>NOTE</u>					
Chaff cartridges are class/division 1.4 only when the BBU-35/B squib is installed					
<u>NOTE</u>					
Max quantity is based on the maximum munitions to be loaded IAW the Mobility Standard Countermeasures Load (MSCL) for the C-130J					

4. Procedures for Chaff/Flare Pre-load Checks

4.1. 86 AMXS Supervision will be notified of any aircraft requiring chaff and flares through GDSS and the flying schedule.

4.2. 86 AMXS Production Superintendent will:

4.2.1. Coordinate with the load team to start the chaff/flare pre-load checks at least 2 hours prior to magazine delivery time, if possible.

4.2.1.1. Stray voltage checks are good for up to 24 hours as long as aircraft power is not reapplied prior to munitions being uploaded.

4.2.2. Coordinate with MUNS flight to ensure munitions will be ready for delivery to the aircraft at the appropriate time if, munitions are not available for issue from the ARMAG.

5. Procedures for Requesting and Transporting Munitions

5.1. The 86 MXG does not transport explosives off base.

5.2. Requesting munitions:

5.2.1. The 86 AMXS Production Superintendent or ECM Section will contact 86 MUNS Munitions Control to request delivery and pickup of chaff/flare magazines to/from the aircraft or ARMAG from/to the 86 MUNS storage facilities.

5.3. Transporting munitions:

5.3.1. Munitions will be transported and protected IAW AFMAN 91-201. The 2 person concept will be used to the maximum extent possible during transport of munitions; however single person transport is authorized by qualified individuals.

5.3.2. Munitions transported by 86 AMXS personnel will only be transferred between Ramps 1, 2 and 6. At no time will explosives be transported by 86 AMXS personnel off of Taxiway Delta and Ramps 1, 2 or 6.

5.3.3. Munitions will be transported directly to and from the affected aircraft and the ARMAG by only qualified individuals.

5.3.3.1. Individuals qualified to transport munitions via vehicle will complete the prescribed training and be signed off in TBA.

5.3.4. When transporting munitions, the appropriate explosives placard will be displayed on all four sides of the vehicle containing the munitions.

5.3.5. Passengers will not occupy the area where munitions are located during transport.

5.3.6. A minimum of two 2A:10BC fire extinguishers must be in the transport vehicle, one in the cab and one in the cargo area, during the movement of munitions.

5.3.7. Munitions will only be transported in munitions containers approved by applicable technical data.

5.3.7.1. Stacking containers containing munitions should be avoided, but if necessary ensure containers are stacked evenly and properly secured.

5.3.8. Tie-down straps will be used to secure munitions containers to the transport vehicle during movement.

5.3.9. Munitions transport vehicles will be chocked during loading or unloading of explosives.

5.3.9.1. Munitions transport vehicles will be chocked when parked and the driver is not behind the wheel.

6. Procedures for Handling and Storing Munitions in ARMAG Container by the Load Crew

6.1. Handling:

6.1.1. Munitions moved between Ramps 1, 2 and 6 via a non-motorized push cart will be considered handling and not transporting.

6.1.1.1. The use of the non-motorized push cart for munitions movement will be limited to aircraft to aircraft movements and times when the designated munitions transport vehicle is unavailable.

6.1.2. Handling of munitions will be directly to and from the affected aircraft(s) on Ramps 1 or 2 and the ARMAG located on the east side of Ramp 6 by load crew members only. At no time will explosives be handled off Taxiway Delta and Ramps 1, 2 or 6.

6.1.2.1. Unless otherwise directed by the Base Fire Chief, provide a minimum of two serviceable fire extinguishers, suitable for the hazards involved, for immediate use at

any location where munitions are being handled. (example: one mounted to non-motorized push cart and at the location.)

6.1.3. Push cart wheels, a minimum of two, will have brakes locked during loading or unloading of explosives.

6.1.4. Tie-down straps will be used to secure munitions canisters to the push cart while being transported.

6.1.5. Munitions will not be left on the push cart unattended requiring maintenance personnel to accompany the cart until munitions are reinstalled on the aircraft or stored in the ARMAG.

6.2. Storage:

6.2.1. The 86 AMXS ARMAG is located in the southeast corner of Ramp 6 and is approved for and will be utilized as a temporary storage structure for chaff/flare loads after 86 MUNS normal duty hours to include weekends and holidays.

6.2.1.1. No more than three loads will be prepped for storage in the ARMAG before weekends or holidays.

6.2.1.2. On the first duty day after the weekend or holiday, all loads will be picked up and returned to Conventional MX for processing.

6.2.2. The ARMAG is not a licensed facility and does not require an AF IMT 2047, *Explosives Facility License*.

6.2.3. The ARMAG will be used to temporarily store small amounts of aircraft countermeasure chaff, flares and Hazard Class/Division (HC/D) 1.3 and 1.4 subcomponents for the 86 AMXS outside of the base munitions storage area. The following explosive limitations will be observed:

6.2.3.1. HC/D 1.4: 480 lbs. net explosive weight (NEW)

6.2.3.2. HC/D 1.3: 480 lbs. NEW

6.2.3.3. HC/D 1.2: 0 lbs. NEW

6.2.3.4. HC/D 1.1: 0 lbs. NEW

6.2.4. Storing munitions in the ARMAG is authorized for 86 AMXS personnel. The ARMAG will be inventoried by 86 MUNS.

6.2.4.1. Both the 86 AMXS CTK and 86 MUNS will maintain keys to the ARMAG. A master key will be maintained by the Electronic Warfare section.

6.2.5. Munitions loads delivered to and stored in the ARMAG by MUNS will be separated and identified by load numbers to ensure the correct canisters remain in the designated load.

6.2.6. Munitions downloaded from an aircraft and stored in the ARMAG will have the "Storage" portion of the 86 MXGFC 1403, *ARMAG Munitions Storage/Issue Checklist*, completed by the load supervisor and 86 AMXS Production Superintendent to ensure proper accountability. The completed Storage/Issue checklist will be maintained in the

AMXS Production Office. The load supervisor will e-mail a scanned copy of the checklist to 86 MUNS Munitions Control at org box 86 MUNS/UCC.

6.2.6.1. Each load will be identified by the aircraft tail number downloaded from and will include the munitions type and quantity being stored.

6.2.6.2. Each load not being re-uploaded will be picked up by 86 MUNS for transport back to Conventional MX for processing.

6.2.7. In the event the ARMAG munitions storage unit is full, contact MOC, at 480-2091, and have them notify 86 MUNS Munitions Control, at 480-2088 or 480-2808, or 86 MUNS Standby Crew, at 0170-311-1521, to arrange a pick-up. *NOTE: 86 MUNS Munitions Flight recall policy allows for a 2-hour response time.*

6.3. Issuing/Re-Issuing munitions for upload:

6.3.1. 86 AMXS personnel are authorized to issue/re-issue munitions from the ARMAG.

6.3.2. The load supervisor and the 86 AMXS production superintendent will complete the "Issue" portion of the 86 MXGFC 1403, *ARMAG Munitions Storage/Issue Procedures Checklist*, to verify the type and quantity of chaff and/or flares being issued.

6.3.2.1. Load supervisors will email the load number used and tail number of the aircraft loaded to 86 MUNS Munitions Control, at org box 86 MUNS/UCC.

6.3.3. Munitions with expenditures or serviceability defects will not be issued/re-issued.

6.4. If the status of the ARMAG changes, from either Empty to Loaded or Loaded to Empty, the Load Supervisor will notify MOC with the updated status. MOC will then contact the Fire Department.

6.5. All personnel adding munitions to or removing munitions from the ARMAG will annotate the MXG Form 1401, *ARMAG Monthly Storage / Issue Activity Log*, located on the inside of the ARMAG door.

7. Uploading and Downloading Chaff/Flare Modules

7.1. Munitions loading operations will not be solely performed for exercise purposes, i.e. exercise evaluations, unless required for real world missions.

7.2. All aircraft parking locations on Ramps 1 and 2 at Ramstein Air Base are authorized for uploading/downloading ADS munitions, IAW Department of Defense Explosives Safety Board (DDESB) Final Approval for USAFE-Ramstein 09-S001 thru S010.

7.2.1. Designated spots on Ramp 1 have been evaluated and approved as Explosive Cargo Aircraft Parking Areas (ECAPAs), IAW 180 Day Operation Waiver for Hot Cargo Pad.

7.3. The loading team, consisting of a minimum of two qualified technicians, will "secure" the immediate area and remain vigilant throughout the upload/download operation to ensure non-essential personnel do not enter area explosive operations are being conducted.

7.3.1. PERSONNEL LIMITS: 1 Supervisor, 2 Workers, and 5 Casuals (e.g. inspectors & MUNS personnel).

7.3.2. Before starting any loading operation, the loading team supervisor will conduct a safety briefing in accordance with T.O. 1C-130J-33-1-2CL-1 pages i thru ii, E-1 and E-2 and **Attachment 2**, Aircraft Munitions Explosive Loading/Unloading Pre-task Briefing.

7.3.2.1. All observers included in load operations must be present for the team safety brief.

7.4. The maintenance expeditor and load team supervisor will ensure that refueling, LOX and aircraft engine run operations are not conducted on adjacent aircraft within 100 feet while load operations are in progress.

7.5. Refer to T.O. 1C-130J-33-1-2 or T.O. 1C-130J-33-1-2CL-1 for step-by-step uploading/downloading procedures.

7.6. The load team will notify MOC prior to starting the upload/download.

7.6.1. MOC will notify Security Forces and the Fire Department when the upload/download is started.

7.7. The aircraft armament placard and AF Form 781A Info-Note page will be used to annotate the quantity and type of payload on the aircraft following the upload/download.

7.7.1. Each munitions type loaded and polled; i.e. M-206, MJU-64B, MJU-50 and RR-170, will not have more than 10% of the loaded inventory mispolling, as indicated in **Table 2** as an example.

Table 2. C-130J MSCL XXX Payload & Minimum Counts

Munitions Payload Display	CNI-MU O1(M-211)	Defensive Systems O2(MJU-64B)	Page CH(RR-170)	CMDS Inventory FL(M-206)
MSCL 202 – Full Load	120	120	60	120
MSCL 202 – Minimum Count	108	108	54	108

7.8. The load team supervisor will notify MOC when the upload/download is complete and verify the 86 AMXS Production Superintendent acknowledges.

7.9. MOC will notify Base Operations, Security Forces and the Fire Department when the upload/download is complete.

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Commander

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

AFPD 21-1, *Air and Space Maintenance*, 25 Feb 2003

AFI 21-101, *Aircraft and Equipment Maintenance Management*, 23 July 2010

AFI 21-101AMC SUP I, *Aircraft and Equipment Maintenance Management, (Air Mobility Command Supplement)* 14 February 2011

AFI 11-218, *Aircraft Operations and Movement on the Ground*, 11 May 2005

AFMAN 91-201, *Explosive Safety Standards*, 12 January 2011

T.O. 11A-1-33, *Handling and Maintenance of Explosive Loaded Aircraft*, 27 May 2009

AFMAN 33-363, *Management of Records*, 1 March 2008

MXG OI 21-112, *Impoundment Procedures*

T.O. 1C-130-J-33-1-2, *Nonnuclear Munitions Loading Procedures*, 1 July 2010

T.O. 1C-130J-33-1-2CL-1, *Nonnuclear Munitions Loading Procedures*, 1 January 2009

Prescribed Forms

MXG Form 1401, *ARMAG Monthly Storage Issue Activity Log*

MXGFC 1403, *ARMAG Munitions Storage/Issuing Procedures Checklist*

Adopted Forms

AF Form 847, *Recommendation for Change of Publications*

AFTO Form 781A, *Maintenance Discrepancy and Work Document*

Acronyms and Abbreviations

ADS—Aircraft Defensive Systems

ADWSR—Additional Duty Weapons Safety Representative

AF—Air Force

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Policy Directive

AMXS—Aircraft Maintenance Squadron

ARMAG—Modular Ammunition Storage Magazine

CG—Compatibility Group

CMDS—Countermeasures Dispensing System

DDESB—Department of Defense Explosives Safety Board

DOT—Department of Transportation
ECAPA—Explosive Cargo Aircraft Parking Areas
ECM—Electronic Countermeasures
EED—Electro-Explosive Devices
EOD—Explosive Ordnance Disposal
FCF—Functional Check Flights
GDSS—Global Decision Support System
HC/D—Hazard Class/Division
IAW—In Accordance With
LPS—Lightning Protection System
MSCL—Mobility Standard Countermeasures Load
MOC—Maintenance Operation Center
MX—Maintenance
MXG OI—Maintenance Group Operating Instruction
MXS—Maintenance Squadron
MUNS—Munitions Squadron
NEW—Net Explosive Weight
T.O—Technical Order
WOW—Weight on Wheels
WP—White Phosphorus
WWS—Wing Weapons Safety

Attachment 2

AIRCRAFT MUNITIONS EXPLOSIVE LOADING/UNLOADING PRE-TASK BRIEFING**Figure A2.1. Aircraft Munitions Explosive Loading/Unloading Pre-Task Briefing****References:**

AFI 21-201, *Management and Maintenance of Non-Nuclear Munitions*, 11 December 2009
AFI 91-203, *Air Force Consolidated Occupational Safety Instruction*, 15 June 2012
T.O. 11A-1-33, *Handling & Maintenance of Explosives-Loaded Aircraft*
T.O. 1C-130J-33-1-2, *Non-Nuclear Munitions Loading Procedures CMDS AN/ALE-47*
T.O. 1C-130J-33-1-2CL-1, *Non-Nuclear Munitions Loading Procedures CMDS AN/ALE-47*

1. Responsibility: Load crew supervisors will provide a safety briefing to all crewmembers, delivery teams, supervisors and casuals prior to the start of each explosive operation. Visitors will be briefed upon arrival and operations will cease until they depart. The load crew supervisor will also assign responsibilities as outlined in this safety briefing and applicable publications.

WARNING

Hand-held radios and cellular phones, due to their portability and mobility, pose a greater Electromagnetic Radiation (EMR) hazard to munitions than any other emitter, and must be kept at least 10 feet away from electro-explosive devices (EED) or the device must be turned off if the 10 foot distance cannot be maintained.

2. Pre-Task Briefing

2.1. See 1C-130J-33-1-2CL-1 pages i, ii, E-1 and E-2 for the loading procedure safety summary, and emergency procedures to include explosives limits, withdrawal distances, loading/unloading location, and emergency contacts.

2.2. Operation to be performed:

2.3. Evacuation assembly location:

2.4. Maximum personnel limits (not to exceed cited limits):

- Supervisor: 1
- Workers: 2
- Casuals: 5

3. General Safety Guidelines:

3.1. Ensure aircraft are positioned in a direction that presents the minimum hazard to personnel, buildings and equipment in the event of an accidental firing of munitions.

3.2. During adverse weather conditions (e.g. ice, slippery road surfaces, electrical storms) loading operations will be conducted IAW AFMAN 91-201, *Explosive Safety Standards* and AFMAN 91-201, *Explosive Safety Standards USAFE SUP*.

3.3. A serviceable handheld radio with battery will be on hand, but no radio frequency transmissions or hand held communication devices will be operated/activated within 10 feet of exposed munitions.

3.4. Loading/unloading operations shall be ceased/suspended when the following hazardous conditions exist:

3.4.1. Aircraft engines are being run at maximum power within 300 feet of the aircraft being loaded.

3.4.2. When aircraft liquid oxygen servicing or refueling/defueling operations are being conducted within 100ft of loading/unloading procedure.

3.4.3. When lightning watch or warning is issued.

3.4.3.1. If a lightning watch or warning is issued during a loading operation, cease the loading operation, secure all unloaded munitions inside the aircraft, and retreat to cover.

3.5. Personnel will avoid wearing high static-generating materials (e.g. 100% polyester, nylon, wool, etc.) as outer garments. Gortex is acceptable for handling munitions.

3.6. Loaded magazines dropped in excess of 3 feet shall be considered unserviceable

3.6.1. If any munition is dropped, it will not be loaded until it has been inspected for serviceability.

3.7. Personnel will avoid unnecessarily standing in front of loaded chaff and flare dispensers.

3.8. Do not breathe fumes from a burning flare.

4. Emergency Actions:

4.1. In case of fire, the following actions will be taken by the individuals indicated:

4.1.1. **Load crew supervisor or load crew members** will:

4.1.1.1. Notify MOC and the fire department by the most expedient method available.

4.1.1.2. Evacuate all non-essential personnel.

4.1.1.3. Remove all munitions not engulfed in flames.

4.1.1.4. Proceed to the Entry Control Point, or most visible approach point, to signal fire fighters and direct them to the scene.

4.1.2. **Munitions delivery crew members** will:

4.1.2.1. Notify 86 MUNS Munitions Control and MOC by any means possible.