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Maintenance

C-17A DEFENSIVE SYSTEMS (DS)

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This instruction establishes specific requirements for defensive systems on C-17A aircraft. These systems use Class 1.3 munitions, which require special handling and coordination. These requirements apply to all agencies involved in handling flares or flare-loaded aircraft. The following procedures must be followed to ensure flares are handled safely and expeditiously. Procedures identified in this instruction apply to all individuals, including aircrews, who are actively engaged in the operation, uploading, downloading, and troubleshooting of the DS systems. This instruction complements AFMAN 91-201, *Explosives Safety Standards*.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

A bar in the left margin on the title line denotes publication had a title change from the previous edition.

1. General Precautions.

1.1. Immediately contact Maintenance Operations Center (MOC), Fire Department, Explosive Ordnance Disposal (EOD), 62 AMXS/MXS Production Superintendents and Wing Safety in the event of any flare mishap involving DS. Withdraw all non-essential personnel and establish a **600-foot** cordon around the aircraft until ground emergency has been terminated by the Fire Department or Explosive Ordnance Disposal Team 1.1.2. Do not use Halon, carbon dioxide, or water (Type A, B or C Rated) fire extinguishers on or near fires involving munitions, pyrotechnics, or magnesium incendiaries (flares). Fire extinguishers should only be used for initial knockdown of fires on aircraft and equipment before the involvement of munitions, pyrotechnics, or magnesium incendiaries or to protect adjacent equipment and facilities.

1.2. Under no circumstances will load crew personnel attempt to upload/download flares if not qualified to do so and/or checklist 1C-17A-33-1-2CL-1 is not available. Aircraft forms will be present during flare upload/download operations and properly documented to reflect any DS maintenance activities performed.

1.3. To increase DS safety awareness, all aircraft should be treated as if loaded with flares.

1.4. When aircraft loaded with flares are parked on ramps that are not controlled by USAF personnel, the appropriate fire warning placards will be posted. ([Attachment 2](#))

2. Maintenance Precautions.

2.1. Aircraft will not be placed into a hangar with flares loaded.

2.2. Aircraft with flares loaded will not be jacked in any manner that would defeat the weight-on wheels safety feature to prevent inadvertent discharge; however, axle/integral jacking with flares loaded is permissible IAW 1C-17A-2-07JG-10-1.

3. Munitions Loading Precautions.

3.1. Only one load crew per aircraft is permitted during flare upload/download operations. The load crew will consist of a minimum of two or a maximum of three fully qualified personnel.

NOTE: Weapons Safety, Weapons Task Qualification Training Manager (WTQTM), or Weapons Task Qualification Crew (WTQC) personnel may serve as the third member of the load crew for evaluation purposes.

3.2. All **non-load** crewmembers will remain outside a 50-foot radius from the aircraft during actual flare upload/download operations (Ref: 1C-17A-33-1-2).

3.3. Personnel who handle flares will not wear static producing clothing (nylon, wool, rayon, silk, or materials of 100 percent polyester) during flare upload/download operations.

NOTE: Gortex may be worn (Ref: AFMAN 91-201, paragraph 2.51.2.2).

3.4. Personnel **will not** position themselves in front of loaded flare dispensers.

3.5. Load teams will have **immediate** access to a radio for use in case of a mishap.

NOTE: Do not transmit radios within 25 feet of flares not installed on the aircraft.

3.6. Aircraft flare upload/download operations will cease when lightning is within 5 nautical miles (Ref: AFMAN 91-201, paragraph 2.56.2).

4. Flare Loading Standardization. The WTQTM assigned to MXG/QA will manage all aspects of flare upload/download training and adherence to established standards for the 62d Airlift Wing. The lead WTQC is assigned to 62 MXS/MXMVE. The WTQTM may appoint a WTQC per Aircraft Maintenance Unit (AMU).

4.1. WTQC personnel will meet the following requirements prior to appointment:

4.1.1. Have a minimum of a 5-skill level.

4.1.2. Have a minimum rank of SSgt (WTQTM may waive to SrA on a case-by-case basis).

4.1.3. Certified load crewmember on the C-17A aircraft.

4.2. 62 MOS/MQTP will train 62 MXS and 62 AMXS personnel for initial and annual refresher flare load crewmember certification.

4.3. The WTQTM, WTQC, and all load crewmembers will meet the following training requirements:

4.3.1. Initial Training: C-17A flare upload/download certification requires C-17A Familiarization Course, C-17A Flare Loading Academics Course, and C-17A Flare Loading Practical Evaluation.

NOTE: Members must hand carry Air Force Form 623, **On the Job Training Records**, to initial flare load certification training.

4.3.2. Recurring Training:

4.3.2.1. All load crewmembers will accomplish C-17A Flare Loading Refresher Course and C-17A Flare Loading Practical Evaluation annually through MQTP.

4.3.2.2. All personnel working on or around DS aircraft will accomplish the Explosive Safety Computer-Based Training Course annually during Block Training.

4.4. Initial and refresher training will be documented in G081 and on AF Form 483, **Certificate of Competency**. Load crewmembers are required to carry a current AF Form 483 during any flare upload/download operation they perform (home station or TDY location). The WTQM, WTQC, or other authorized personnel may request load crewmembers to produce AF Form 483 during any flare upload/download operation.

5. Scheduling Flare Loaded Missions and Locals.

5.1. The 62d Maintenance Operation Squadron's Plans and Scheduling (62 MOS/MXOOS) section will annotate on the daily flying schedule what aircraft require flare uploads. They will provide Munitions Control (62 MXG/MXMW) with a daily flying schedule.

NOTE: Expenditure of operational flares for training or other than real-world mission tasking is unauthorized without prior coordination and approval of the 62 MXS/MXMW, Munitions Accountable Systems Officer (MASO) or delegated representative.

5.2. AMXS production supervisor will notify 62 MXS Production Supervision (MIKE 2) and/or MOC of desired downloads as soon as possible to ensure Munitions Handling Crew availability.

5.3. Aircraft loaded with flares and scheduled for evening DS missions may fly local training missions earlier in the day.

6. Requesting, Transporting, and Loading Flares.

NOTE: Built-up flares will not be floor loaded on aircraft. Ref: AFJMAN 24-204

6.1. 62 AMXS will have a minimum of one load team per shift per AMU to cover flare upload/download operations.

6.2. Upon completion of the preload checks, the 62 AMXS Production Supervisor will coordinate flare delivery through the 62 MXS Production Supervisor and notify MOC of the flare upload status.

6.3. MOC will notify the Fire Department:

6.3.1. Of aircraft tail number, parking location, and departure time of any flare-loaded aircraft.

6.3.2. When flare upload/download operations begin and end.

6.3.3. When a hung flare condition is encountered.

6.4. Load crews will:

6.4.1. Notify MOC and the 62 AMXS Production Supervisor upon receipt of flares and when the upload/download operations begin and end.

6.4.2. Store CMDS dispenser cover panels in aft cargo bay storage locations ([Attachment 3](#)) on aircraft following munitions upload. These assets along with the empty flare magazine containers will remain with the aircraft at all times.

7. Recovering and Downloading Munitions Loaded Aircraft.

7.1. Prior to aircraft landing at McChord AFB:

7.1.1. The aircrew will complete applicable checklist procedures and notify the Command Post of arrival and munitions status. The Command Post will then forward the information to MOC, who will notify 62 AMXS/MXS Production Supervisors of any necessary actions.

7.2. The aircrew will stop the aircraft immediately after departing the active runway and deplane the scanner or loadmaster to check all CMDS dispensers for hung flares. If a hung flare is detected, follow procedures in paragraph [8](#).

NOTE: Aircraft that have come to a full stop and taxi for another take-off, do not require a hung flares check prior to take-off.

NOTE: All flares downloaded at home station require a post use inspection by qualified munitions personnel prior to being released for further use.

7.3. Direct any deviations to Para [7.1.](#) and [7.2.](#) to the 62 AMXS Production Supervisor in conjunction with the Command Post Duty Officer for approval.

7.4. Aircraft recovering at locations not normally under the control of USAF maintenance personnel or not associated with munitions handling (i.e., Malaysian Air Fields) will have flare fire/hazard symbol signs posted. ([Attachment 2](#))

8. Hung Flare Procedures.

NOTE: ALE-47 flares that fail to fire are not considered hung flares. See [Attachment 4](#) for identification of hung flares.

8.1. When a hung flare condition is suspected in flight:

8.1.1. The aircrew will:

8.1.1.1. Notify the Control Tower and Command Post of the suspected hung flare condition by declaring an in-flight emergency (IFE).

8.1.1.2. Verify that the DS is safed according to all system safety procedures before landing.

8.1.1.3. Avoid bringing the aircraft to a full stop anywhere on the ramp that might restrict the flow of emergency and maintenance vehicles from responding to a hung flare condition and increase the safety risk to the aircraft and crew. Taxi suspect aircraft to one of the following "hot cargo" pads: L-1, K-2, or F-40.

8.1.1.4. Deplane a scanner or loadmaster to visually check for hung flares. If a hung flare is

detected, the crew will shut down and then evacuate the aircraft and establish a 600-foot cordon around the aircraft.

8.1.2. Command Post will:

8.1.2.1. Initiate the hung flare ground emergency checklist if not received via crash net.

8.1.2.2. Obtain parking location from MOC for a hung flare check and forward that location to the aircrew.

8.1.2.3. Notify Fire Department and EOD of the suspected hung flare condition and location of aircraft.

8.1.3. EOD will safe the DS, remove any/all hung flares, and terminate the ground emergency.

8.2. If a hung flare is encountered by the scanner or loadmaster and an IFE was not previously declared:

8.2.1. The aircrew will declare a ground emergency with the tower, shut down and evacuate the aircraft, and establish a 600-foot cordon around the aircraft.

8.2.2. The Command Post will initiate the ground emergency checklist and forward aircraft location to the Fire Department and EOD.

8.2.3. EOD will safe the DS, remove any/all hung flares, and terminate the ground emergency.

9. Uploading/Downloading Mishap Procedures.

9.1. Load crew will inspect any magazine dropped from a height of less than 3 feet for damage in accordance with the applicable aircraft checklist (1C-17A-33-1-2CL-1).

9.2. If a loaded magazine is dropped from a height of 3 feet or more:

9.2.1. Load crew will cease operations, declare a ground emergency, evacuate the aircraft, and establish a 600-foot cordon around the aircraft.

9.2.2. The Command Post will initiate the ground emergency checklist.

9.2.3. Upon ground emergency termination, MOC will contact the 62 MXS Production Supervisor for turn-in of the dropped magazine. Munitions personnel will extract all flares and ECM personnel will inspect the magazine for serviceability.

ROBERT R. ALLARDICE, Colonel, USAF
Commander, 62d Air Wing

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

T.O. AFI 21-101, *Aerospace Equipment Maintenance Management*, 01 Oct 2002

T.O. 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding*, 15 Nov 2002

T.O. 11A-1-33, *Handling and Maintenance of Explosive-Loaded Aircraft*, 22 Jan 2001

T.O. 1C-17A-33-1-2, *Non-Nuclear Munitions Loading Procedures AN/ALE-47 Countermeasures Dispensing System*, 01 Aug 1996

AFI 11-2C-17V3, *C-17 Operational Procedures*, 01 Dec 1999

AFMAN 91-201, *Explosives Safety Standards*, 18 Oct 2001

AMC Concept of Operations for Employing Defensive Systems.

Abbreviations and Acronyms

AMU—Aircraft Maintenance Unit

CMDS—Countermeasures Dispensing System

DS—Defensive Systems

MOC—Maintenance Operations Command Center

WTQC—Weapons Task Qualification Crew

WTQTM—Weapons Task Qualification Training Manager

Attachment 2

FIRE WARNING PLACARD

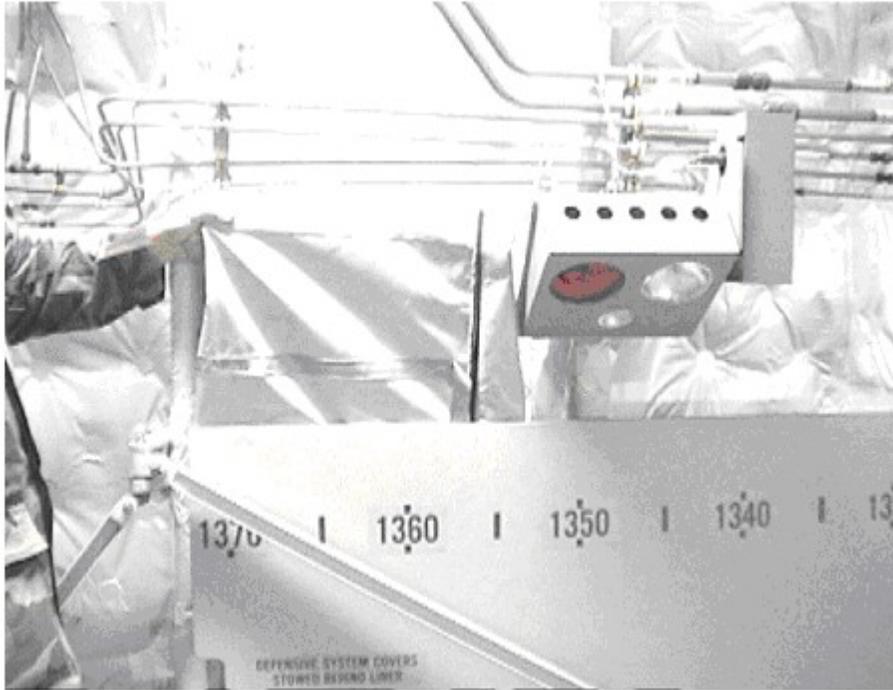
Figure A2.1. Fire Warning Placard Example.



Attachment 3

DS COVER STORAGE LOCATION

Figure A3.1. DS Cover Storage Location.



Attachment 4
HUNG FLARES

Figure A4.1. C-17 Hung MJU-10B flare.



Figure A4.2. Hung MJU-7A/B flare

