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Safety

**SAFETY RULES FOR US STRATEGIC
BOMBERS**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 91-1, *Nuclear Weapons and Systems Surety*. It applies to operations with B-1B, B-52H, and B-2A aircraft and nuclear weapons dedicated for use with the aircraft. Section A assigns responsibilities. Section B contains each nuclear weapon systems' safety rules. The safety rules in Section B may only be changed or supplemented using procedures in AFI 91-102, *Nuclear Weapon System Safety Studies, Operational Safety Reviews, and Safety Rules*. This instruction does not apply to the Air Force Reserve and Air National Guard. See attachment 1 for abbreviations and acronyms used in this instruction.

SUMMARY OF REVISIONS

Incorporates the B61-11 in the authorized weapons listed for carriage on the B-2A. Changed material is indicated by a |.

Section A—Authority and Responsibilities

1. Joint Chiefs of Staff (JCS) Direction. The JCS direct the Chief of Staff, US Air Force, to implement the safety rules.

2. Temporary Limitations. The Air Force may impose restrictions on application of safety rules.

3. Functional Responsibilities:

3.1. Commander, Air Force Safety Center:

- Ensures that the safety rules work, providing maximum safety consistent with operational requirements.
- Ensures that units follow the safety rules.

3.2. Using Major Commands (MAJCOM):

- Ensure that their units follow the safety rules.
- Ensure that all safety standards and procedures agree with the approved safety rules.
- Inspect for compliance.

3.3. Air Force Materiel Command (AFMC). AFMC ensures that its manuals, checklists, and technical orders do not conflict with the safety rules.

Section B—Safety Rules

4. General Guidance:

4.1. Safety rules always apply, even during war.

4.2. A commander may deviate from a specific rule in an emergency, but may not expend a nuclear weapon until authorized by an authenticated emergency war order. DoD Directive 3150.2, *Safety Studies and Reviews of Nuclear Weapon Systems*, December 23, 1996, defines an emergency as "an unexpected occurrence or set of unexpected circumstances in which personnel or equipment unavailability, due to accident, natural event, or combat, may demand immediate action that may require extraordinary measures to protect, handle, service, transport, jettison, or employ a nuclear weapon."

4.3. Don't fly the weapon system until authorized.

4.4. These rules, weapon system features, operational controls, and technical procedures, ensure that US strategic bombers meet the Nuclear Weapon System Safety Standards in AFI 91-101, *Air Force Nuclear Weapons Surety Program*, and DoD Directive 3150.2.

4.5. Do not load nuclear and conventional weapons on the same aircraft.

4.6. The Secretary of the Air Force, Chief of Staff, or Commander of the operational major command must specifically approve generation of the B53-1 for each exercise or evaluation.

4.7. The following weapons are authorized:

4.7.1. B-1B:

- B61-7
- B83-0, -1

4.7.2. B-52H:

- AGM-86B/W80-1
- AGM-129/W80-1
- B53-1
- B61-7
- B83-0, -1

4.7.3. B-2A:

- B61-7
- B83-0, -1
- B61-11

5. Troubleshooting and Use of Equipment, Procedures, and Checklists:

5.1. Don't use nuclear weapons to troubleshoot faults. Use only equipment and procedures that are consistent with US Air Force-approved publications for nuclear weapons or nuclear weapon system operations.

5.2. Training is prohibited with nuclear weapons loaded on the aircraft. This includes simulation and partial simulation mode training.

5.3. Approved publications must conform with weapon system safety rules and meet the DoD Nuclear Weapon System Safety Standards.

5.4. Don't modify the aircraft monitoring and control system, suspension or release systems, associated handling and test equipment, or any other aircraft system that affects nuclear surety without US Air Force approval.

6. Security Criteria. AFI 31-101, *The Physical Security Program*, Vol 1; *The Air Force Nuclear Surety Program Standard*, Vol 2, and DoD C-5210.41-M, *Nuclear Weapon Security Manual (U)*, April 1994, apply.

7. Tamper Control and Detection. AFI 91-104, *Nuclear Surety Tamper Control and Detection Programs*, defines the Two-Person Concept and sealing requirements.

8. Handling and Storage of Certified Software. AFI 91-105, *Critical Components*, applies.

9. Personnel Reliability. AFI 36-2104, *Nuclear Weapons Personnel Reliability Program*, and DoD Directive 5210.42, *Nuclear Weapon Personnel Reliability Program (PRP)*, May 25, 1993, applies.

10. Nuclear Identification:

10.1. B-52H. Develop procedures to distinguish an AGM-86B or AGM-129 missile that has a nuclear warhead from one that doesn't.

10.2. Weapon Shapes and Containers. Develop procedures to:

- Distinguish nuclear bombs from test or training shapes.
- Identify containers that contain nuclear warheads.

11. Basic Weapon Configurations. Verify that the AGM-86B/W80-1, AGM-129/W80-1, B53-1, B61-7, B61-11, B83-0, and B83-1 are safe using applicable technical orders. These are the proper configurations:

11.1. B53-1:

- Verify the Safing Switch is in the SAFE position.
- Verify the pull-out rods are in the fully seated position.

11.2. AGM-86B/W80-1:

- Warhead arming device safing pin is installed and the device indicates safe (white S on green background).

- Rotary separation switch pin is installed (red band is not visible). (Remove only when authorized by applicable technical data.)

11.3. AGM-129/W80-1:

- Arm/disarm device indicates safe (white S on green background).
- Separation switch pin is installed. (Remove only when authorized by applicable technical data.)

11.4. B61-7, -11 and B83-0, -1. No safety verification actions required.

12. Basic Aircraft Configurations:

12.1. B-1B. Retain these configurations:

- Nuclear Consent switch in the NORM (normal) position.
- Nuclear Consent switch cover down, safety wired, and sealed.
- NUC UNLOCK/LOCK switch in the LOCK position.
- NUC UNLOCK/LOCK switch guard down, safety wired, and sealed.
- NUC PREARM/OFF switch in the OFF position.
- NUC PREARM/OFF switch guard down, safety wired, and sealed.

12.2. B-52H. Retain these configurations:

12.2.1. Clip-in Mated B53-1 Nuclear Bomb:

- Manual and electrical bomb release system controls are not in the RELEASE or ON position.
- Special Weapons Manual Lock handle in the LOCKED position, safety wired, and sealed.
- Release Circuits Disconnect (RCD) disconnected with the cover closed, safety wired, and sealed.
- Special Weapons Manual Release handles in the unactuated position, safety wired, and sealed.
- Emergency Bomb Release switch, if installed, in the OFF position, safety wired, and sealed.
- Off-Monitor-Safe (OMS)/Safe-Arm (SA) Interlock Lever (DCU-238/A) in the OMS position, safety wired, and sealed.
- Readiness switch (DCU-47/A) in the SAFE position with the cover down, safety wired, and sealed.

12.2.2. Common Strategic Rotary Launcher (CSRL) Mated B61-7, B83-0, and B83-1 Gravity Bombs or AGM-86B/W80-1 Missiles:

12.2.2.1. Pilot's Missile/Munitions Consent Panel:

- Off/Prearm switch in the OFF position with the cover down, safety wired, and sealed.
- Lock/Unlock switch in the LOCK position with the cover down, safety wired, and sealed.

12.2.2.2. Weapon Control Panel:

- Nuclear Lock/Unlock switch in the LOCK position with the cover down, safety wired, and sealed.
- Nuclear Prearm Enable/Off (PA ENBL/OFF) switch in the OFF position with cover down, safety wired, and sealed.
- Weapon Jettison Select/Normal (SEL/NORM) switch in the NORM position with cover down, safety wired, and sealed.

12.2.3. Pylon-Carried AGM-86B/W80-1 and AGM-129/W80-1:

- RCD disconnected with the cover closed, safety wired, and sealed.
- The guards on the left and right Pylon Jettison Consent switches down, safety wired, and sealed.
- Pylon jettison control indicators show PYLON LOCKED.

12.2.3.1. Pilot's Missile/Munitions Consent Panel:

- Off/Prearm switch in the OFF position with the cover down, safety wired, and sealed.
- Lock/Unlock switch in the LOCK position with the cover down, safety wired, and sealed.

12.2.3.2. Weapon Control Panel:

- Nuclear Lock/Unlock switch in the LOCK position with the cover down, safety wired, and sealed.
- Nuclear PA ENBL/OFF switch in the OFF position with the cover down, safety wired, and sealed.
- Pylon Lock/Unlock switch in the LOCK position with the cover down, safety wired, and sealed.
- Weapon Jettison SEL/NORM switch in the NORM position with the cover down, safety wired, and sealed.

12.3. B-2A retain these configurations:

12.3.1. Rotary Launcher Assembly (RLA) mated with B61-7, B61-11, B83-0, and B83-1 bombs. Mixed nuclear loads are authorized.

12.3.1.1. Weapon Jettison Panel:

- ALL ENBL switch in the OFF position with guard cover down.
- SEL ENBL switch in the OFF position with guard cover down.

12.3.1.2. Pilot's Consent Panel:

- NUC UNLK ENBL switch in the OFF position with guard cover down, safety wired, and sealed.
- NUC PA ENBL switch in the OFF position with guard cover down, safety wired, and sealed.

12.3.1.3. Mission Commander's Consent Panel:

- NUC UNLK ENBL switch in the OFF position with guard cover down, safety wired, and sealed.

- NUC PA ENBL switch in the OFF position with guard cover down, safety wired, and sealed.

13. Cruise Missile Operations:

13.1. Mission Planning:

13.1.1. Develop mission profiles so that the required g-maneuver occurs as late in the mission as possible.

13.1.2. Strategic Mission Planning System operations must ensure that all missions against pre-planned targets terminate within the target area.

13.2. Fueling:

- Perform fueling and defueling operations in the Integrated Maintenance Facility's (IMF) fueling room only.
- If fuel is in the fuel set, only perform operations involving the missile's fuel system or the fuel set in the IMF fueling room.
- When fuel is in the fuel set, close fuel room doors. EXCEPTIONS: The automatic fire door may be open. Personnel access doors may be opened to enter and exit.

14. Storage, Maintenance, Testing, Ground Transportation, Mating, Demating, Loading and Unloading:

14.1. Store nuclear weapons in US Air Force-approved, locked, and secured facilities. Nuclear weapons operations and storage in the IMF must be the absolute minimum consistent with operational requirements.

14.2. Do not store any B53-1 bombs with plutonium-bearing weapons.

14.3. Maintain basic weapon configurations (paragraph 11).

14.4. With missiles on a pylon, install the ejector safing pin. When pylons are installed on the aircraft, ensure pylon jettison safing pins are installed. (Remove only when authorized by applicable technical data.)

14.5. For rotary launchers, verify CSRL/RLA ejector safing mechanism lockpin is engaged and CSRL/RLA ejector safing mechanism levers indicate locked.

14.6. Fuel aircraft for the assigned mission before loading nuclear weapons.

14.7. Do not load an aircraft unless it is capable of performing its assigned mission.

14.8. After weapons are loaded, only routine servicing and minor maintenance of the aircraft are authorized.

14.9. Perform fuel management actions on loaded aircraft only as necessary to support a particular aircraft's assigned mission.

14.10. B-52H:

14.10.1. Break the safety wire and seal on the Special Weapons Manual Lock Handle and pull the handle to verify lock and unlock indications during postload procedures only if:

- There are no cartridges in the MHU-29A/C clip-in assembly, or
- MHU-29A/C release cartridge cable plugs are disconnected and stowed with shorting caps installed. (Aircraft-to-aircraft exchange only.)

14.10.2. After verifying lock and unlock indications from the Special Weapons Manual Lock Handle, return the handle to the LOCKED position and immediately install the safety wire and seal using applicable technical data.

15. Logistics Movement of Nuclear Weapons by Cargo Aircraft:

15.1. Transport in basic weapon configurations (paragraph 11).

15.2. Do not transport the W80-1 mated to the missile.

15.3. Do not transport the B53-1 with plutonium-bearing weapons.

15.4. Perform in accordance with AFI 91-115, *Safety Rules for Nuclear Logistics Transport by the Prime Nuclear Airlift Force*.

16. Ground Operations Involving Nuclear Weapon-Loaded Aircraft:

16.1. Maintain nuclear weapons and aircraft in their basic configuration. (paragraph 11 and 12).

16.2. Electrically verify safe status of the weapons with the applicable aircraft storage management system after weapons upload.

16.3. After completing the upload and postload functions, apply power to a loaded nuclear weapon only for authorized permissive action link (PAL) operations, command disable (CD) operations, or to monitor the weapon. **NOTE:** Keep weapon monitoring to a minimum.

16.4. Apply power to a nuclear weapon-loaded aircraft only to:

- Perform maintenance or authorized preflight operations.
- Monitor the weapons or rack locks.
- Start or run engines.
- Warm up equipment.
- Monitor the radio.
- Perform authorized PAL, CD, or coded switch operations.
- Taxi.

16.5. Do not start or run an engine unless:

- Checking aircraft status.
- Performing maintenance.
- Conducting practice alerts, exercises, inspections, evaluations, taxiing, and flying operations.

16.6. Engine starts and engine runs must:

- Be kept to a minimum.
- Be done by an authorized aircrew. (Two-Person Concept applies.)

16.7. Aircraft towing:

- Keep towing to a minimum.
- Two authorized and qualified individuals must be in the cockpit during towing. (Two-Person Concept applies.)

16.8. Taxi.

16.8.1. Keep taxiing to an absolute minimum consistent with operational requirements. Taxi aircraft, if necessary, only for these purposes:

- Practice alerts.
- Exercises.
- Inspections or evaluations.
- Flying operations.
- Increased alert postures.

16.8.2. Two authorized and qualified crewmembers must be in the aircraft during taxiing. (Two-Person Concept applies.)

16.9. Perform fuel management only as necessary to support an aircraft's assigned mission requirements.

16.10. Use applicable technical orders to conduct authorized maintenance and weapon load changes.

17. Flying Operations Involving Carriage of Nuclear Weapons in a Nonstrike Configuration:

17.1. Conduct only when:

- Directed by appropriate authority.
- Nuclear weapons are in their basic configurations (see paragraph 11).
- The aircraft is in its basic configuration (see paragraph 12).

17.2. Plan flight routes to avoid populated areas to the maximum extent possible.

17.3. If loss of the aircraft is anticipated, Command Disable the weapons if the aircraft is capable, and time and conditions permit.

17.4. B-1B:

- Disconnect, cap, and stow the code enabling switch (CES) connector.
- Don't install the CES shorting plug in the connector.
- Don't apply power to the weapons interface unit until immediately before an authorized emergency jettison.
- When authorized to jettison weapons, break the locking/release system safety wires and seals and operate the controls by following approved checklists.

17.5. B-52H:

17.5.1. Do not connect the bomb monitor and control circuits between the aircraft and the MHU-29A/C.

17.5.2. With bombs mated to a CSRL, or cruise missiles loaded.

- Disconnect the disabled CES.

- Attach the connector to the storage receptacle.

17.5.3. When authorized to jettison weapons, break the locking/release system safety wires and seals and operate the controls by following applicable technical orders.

17.5.4. Do not apply missile power. Keep application of missile interface unit power to a minimum.

17.6. B-2A:

17.6.1. Retain Command Disable capability.

17.6.2. Maintain PAL locked.

17.6.3. When authorized to jettison weapons, break the locking/release system safety wires and seals and operate the controls by following applicable technical orders. Command Disable weapons if time and conditions permit.

18. Flying Operations Involving Carriage of Nuclear Weapons in a Strike Configuration:

18.1. Conduct only when:

- Directed by appropriate authority.
- Launch for survival has been ordered under positive threat of imminent attack.
- Authorized to fly in a strike configuration as part of a deployment or dispersal.
- Authorized to fly in airborne alert status. NOTE: Airborne alert flights must proceed along designated flight plan routes and be under positive control.

18.2. Keep nuclear weapons in their basic configurations (paragraph 11) until authorized to prearm.

18.3. Keep the aircraft in its basic configuration (paragraph 12) until authorized to prepare weapons for release.

18.4. When authorized to jettison weapons, break the locking/release system safety wires and seals. Ensure PAL is locked and Command Disable the weapons if the aircraft is capable, and time and conditions permit. Operate the controls by following approved checklists.

18.5. Do not operate the safety-wired controls required for a prearmed release until authorization to expend nuclear weapons is received and weapon preparation for release checklist is required.

18.6. Plan flight routes to avoid populated areas to the maximum extent possible.

18.7. If loss of the aircraft is anticipated, relock PAL and Command Disable the weapons if the aircraft is capable, and time and conditions permit.

19. Coded Switch Procedures. Use plans and procedures prescribed by proper authorities.

20. PAL Procedures.

20.1. Use PAL codes and PAL controllers only as directed by appropriate authority.

20.2. For aircraft with cockpit PAL control, relock PAL if a strike mission is terminated or aborted.

21. CD Procedures. Use CD codes and CD equipment only as directed by appropriate authority.

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Attachment 1

LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviations and Acronyms

APU--Auxiliary Power Unit

CD--Command Disable

CES--Code Enabling Switch

CSRL--Common Strategic Rotary Launcher

DoD--Department of Defense

ENBL--Enable

IMF--Integrated Maintenance Facility

NORM--Normal

OMS--Off-Monitor-Safe

PA--Prearm

PAL--Permissive Action Link

RCD--Release Circuits Disconnect

SA--Safe-Arm

SEL--Select

SIS--Separation-Ignition Switch