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Safety

SAFETY RULES FOR US STRIKE AIRCRAFT

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This instruction implements AFR 91-1, *Nuclear Weapons and Systems Surety*. It applies to operations with US F-15E, F-16C/D, and F-111E/F aircraft and nuclear weapons dedicated for use with the aircraft. **Section A** assigns responsibilities and **Section B** contains the nuclear weapon system safety rules for the weapon systems. The safety rules in **Section B** can only be changed or supplemented using procedures in AFI 91-102, *Nuclear Weapon System Safety Studies, Operational Safety Reviews, and Safety Rules* (formerly AFR 122-2). This instruction does not apply to the Air Force Reserve and Air National Guard.

SUMMARY OF REVISIONS

This is the first issuance of AFI 91-112. The instruction combines safety rules for the F-16C/D and F-111E/F aircraft previously in AFRs 122-26 and 122-37, incorporates F-15E safety rules, and includes numerous administrative changes to improve readability.

Section A—Authority and Responsibilities

- 1. Joint Chiefs of Staff (JCS) Direction.** The JCS directs the Chief of Staff, US Air Force, to implement the rules.
- 2. Temporary Limitations.** The Air Force may impose restrictions on application of safety rules.
- 3. Functional Responsibilities:**
 - 3.1. The Commander, Air Force Safety Agency, must ensure:
 - 3.1.1. The safety rules work, providing maximum safety consistent with operational requirements.
 - 3.1.2. Units follow the safety rules.

- 3.2. Using major commands (MAJCOM) must:
 - 3.2.1. Ensure their units follow the safety rules.
 - 3.2.2. Ensure safety standards and procedures agree with the safety rules.
 - 3.2.3. Inspect for compliance.
- 3.3. Air Force Materiel Command ensures its manuals, checklists, and technical orders do not conflict with the safety rules.

Section B—Safety Rules

4. General Information. Safety rules always apply, even during war. A commander may deviate from a specific rule in an emergency, but may not expend a nuclear weapon until authorized by an emergency war order. DoD Directive 3150.2, *Safety Studies and Reviews of Nuclear Weapon Systems*, February 8, 1984, 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, or employ a nuclear weapon:

- 4.1. Do not fly the weapon system until authorized.
- 4.2. These rules, weapon system features, operational controls, and technical procedures, ensure US Strike Aircraft meet the Nuclear Weapon System Safety Standards in AFI 91-101, *Air Force Nuclear Weapons Surety Program* (formerly AFR 122-1) and DoD Directive 3150.2.

5. Troubleshooting and Using Equipment, Procedures, and Checklists:

- 5.1. Do not use nuclear weapons to troubleshoot aircraft faults. Use only equipment and procedures that are consistent with US Air Force-approved publications for nuclear weapons or nuclear weapon systems operations.
- 5.2. Approved publications must conform with weapon system safety rules and meet the DoD Nuclear Weapon System Safety Standards.

6. Security Criteria. AFI 31-101, *The Air Force Physical Security Program* (formerly AFR 207-1), and DoD 5210.41-M (C), *Nuclear Weapon Security Manual*, September 1987, apply.

7. Tamper Control and Detection. AFI 91-104, *Nuclear Surety Tamper Control and Detection Programs* (formerly AFR 122-4), defines the Two-Person Concept and sealing requirements.

8. Handling and Storage of Certified Software. AFI 91-105, *Critical Components* (formerly AFR 122-17), applies.

9. Personnel Reliability. AFI 36-2104, *Nuclear Weapons Personnel Reliability Program* (formerly AFR 35-99 and AFR 40-925) applies.

10. Basic Weapon Configurations:

- 10.1. Verify B61-3, -4, and -10 is safe using applicable technical orders.

10.2. Place the B61-3 and -4 signal selector switch, if installed, in the NORMAL position.

11. Basic Aircraft Configurations:

11.1. F-15E:

- Nuclear Consent switches in the SAFE position.
- Nuclear Consent switch guard down, safety wired and sealed.
- Master Arm Switch in the OFF position.

11.2. F-16C/D:

- Nuclear Consent switch in the OFF position.
- Nuclear Consent switch guard down, safety wired and sealed.
- Master Arm Switch in the OFF position.

11.3. F-111E:

- DCU-254A Control Monitor's control lever in the OFF-MONITOR- SAFE (OMS) position, safety wired and sealed.
- Nuclear Consent switch in the OFF position.
- Nuclear Consent switch guard down, safety wired and sealed.
- Station Select switches deselected.

11.4. F-111F:

- DCU-218/A Control Monitor's control lever in the OMS position, safety wired and sealed.
- Nuclear Consent Switch in the OFF position.
- Nuclear Consent switch guard down, safety wired and sealed.
- Station Select switches deselected.

12. Storage, Maintenance, Testing, Ground Transportation, Loading, and Unloading:

12.1. Store nuclear weapons in US Air Force-approved, locked, and secured facilities.

12.2. See paragraph 10. for basic weapon configurations.

12.3. Load nuclear weapons only on aircraft certified for the mission to be performed.

13. Logistics Movement of Nuclear Weapons by Cargo Aircraft:

13.1. Transport nuclear weapons in their basic configurations (paragraph 10.).

13.2. The aircrew performs or controls all loading, tiedown, and unloading operations.

13.3. The aircrew performs or controls all maintenance activities on a nuclear cargo-loaded aircraft and en route maintenance on a nuclear logistics mission aircraft.

14. Operations Involving Collocation of Nuclear Weapons and Conventional Munitions. Collocation is a concept for storing conventional munitions (including air-to-air missiles) in a hardened aircraft shelter (HAS) during nuclear generation and alert operations:

- 14.1. Comply with paragraph **15**, if the Weapons Storage and Security System (WS³) is being used.
- 14.2. Do not perform major nuclear weapon maintenance in a HAS containing conventional munitions or an aircraft. (Major maintenance is defined as any activity involving case separation).
- 14.3. Remove all conventional munitions and the aircraft from the HAS before performing any major maintenance on nuclear weapons inside a HAS.
- 14.4. MAJCOM approved plans must authorize collocating nuclear weapons and conventional munitions in a HAS and must be approved by the unit commander.
- 14.5. Before bringing nuclear weapons into a HAS containing conventional munitions:
 - 14.5.1. Fuel and prepare for loading a mission capable aircraft.
 - 14.5.2. Have qualified load crew or munitions personnel verify that conventional munitions not loaded on the aircraft are safe.
- 14.6. Ensure the net explosive weight does not exceed 10,000 pounds.
- 14.7. When a nuclear weapon-loaded aircraft is in a HAS containing conventional munitions conduct:
 - 14.7.1. Engine runs only when necessary to check aircraft status, perform maintenance, and prepare for authorized flying operations.
 - 14.7.2. Fueling operations only to maintain the aircraft for its mission requirements.
 - 14.7.3. All other operations using technical data and only if approved by the group commander.
- 14.8. Do not conduct engine runs and fueling operations during practice alerts, exercises, evaluations, or inspections.

15. Operations Involving the WS³. Comply with these rules when the Weapons Storage Vault (WSV) contains a nuclear weapon or controlled component:

- 15.1. Do not place conventional munitions within 15 feet of the WSV, except for wall-mounted air-to-air missiles.
- 15.2. Perform normal day-to-day aircraft maintenance operations only when the WSV is fully down and locked. (Comply with paragraph **14**, when a nuclear weapon-loaded aircraft is in a HAS containing conventional munitions).
- 15.3. Before raising the nuclear weapon-loaded WSV:
 - 15.3.1. Comply with security procedures to protect the nuclear weapons and controlled components.
 - 15.3.2. Fuel the mission capable aircraft and prepare it for loading.
 - 15.3.3. Comply with paragraph **14**.
- 15.4. Cease aircraft maintenance operations once the WSV has been opened and the no-lone zone established. Use technical data to perform only those operations approved by the group commander.
- 15.5. When a nuclear weapon-loaded WSV is not fully down:

- 15.5.1. Do not move aircraft into or out of the HAS.
- 15.5.2. Move only mission-essential equipment into or out of the HAS.
- 15.5.3. Do not perform engine runs, fueling, or liquid oxygen servicing operations.
- 15.5.4. Do not perform conventional integrated combat turnaround procedures.
- 15.5.5. Use technical data to perform only those operations approved by the group commander.
- 15.6. If a fuel, liquid oxygen, or similar hazardous substance release within the HAS is deemed an emergency, bring the nuclear weapon-loaded WSV to a fully down position until the emergency is terminated by proper authority.
- 15.7. Do not conduct fuel-cell maintenance operations in a HAS containing a nuclear weapon-loaded WSV.
- 15.8. Aircraft and associated ground support equipment can remain in the HAS while performing maintenance on the WSV.

16. Onbase Dispersal of Nuclear Weapons. Units without the WS ³:

- 16.1. Disperse nuclear weapons from weapons storage areas when directed by appropriate authority and according to MAJCOM-approved plans.
- 16.2. Disperse weapons only to:
 - 16.2.1. An empty HAS.
 - 16.2.2. A HAS containing support equipment or war readiness support kits not posing a hazard to the weapons.
 - 16.2.3. A HAS containing no more than one aircraft (with or without weapons) parked nose out. (Only minor maintenance, of the type authorized on nuclear weapon-loaded aircraft, is permitted in the HAS).
 - 16.2.4. An empty bay of a semihardened fuel truck shelter (FTS). In a double-bay FTS, a fuel truck may be housed in the adjacent bay. Do not store nuclear weapons and fuel trucks in the same bay.
- 16.3. Do not use nuclear weapons for onbase dispersal training, practice alerts, exercises, inspections, or evaluations.

17. Ground Operations Involving Nuclear Weapon-Loaded Aircraft:

- 17.1. Keep the B61-3 and -4 Signal Selector switch, if installed, in the NORMAL position.
- 17.2. Apply power to a loaded nuclear weapon only for authorized permissive action link (PAL) operations or to monitor the weapon. Keep weapon monitoring to a minimum.
- 17.3. Apply power to a nuclear weapon-loaded aircraft only to:
 - Perform maintenance.
 - Perform authorized preflight operations.
 - Start the engine or engines.
 - Warm up equipment.

- Monitor the radio.
- Perform authorized PAL operations.

17.4. Do not move a nuclear weapon-loaded aircraft under its own power unless:

- For authorized flying operations.
- Necessary to preserve the safety of the weapon system.

17.5. Keep aircraft towing to a minimum.

17.6. F-15E and F-111E/F. Two authorized and qualified individuals must be in the cockpit during towing.

17.6.1. F-16C/D. A qualified and authorized individual must be in the cockpit during towing.

17.6.2. Have a Two-Person Concept team verify the basic aircraft configuration when towing is complete.

17.7. Run the engine or engines only if necessary to:

- Check aircraft status.
- Perform maintenance.
- Prepare for authorized flying operations.
- Conduct practice alerts, exercises, evaluations, or inspections (except as restricted when conventional munitions are collocated in a HAS).

17.8. Use a physical barrier to prevent an unauthorized takeoff during engine runup.

17.8.1. F-15E and F-111E/F. Allow only authorized aircrews to perform engine runup (Two-Person Concept applies).

17.8.2. F-16C/D. Allow only an authorized pilot to conduct engine runup.

17.8.3. Have a Two-Person Concept team verify the basic aircraft configuration following engine runup.

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

18.1. Conduct only when directed by appropriate authority.

18.2. Put nuclear weapons in their basic configurations (paragraph 10.).

18.3. Do not make electrical pullout connections between the nuclear weapons and the aircraft.

18.4. Install a shorting plug at each station loaded with a nuclear weapon.

18.5. Break the safety wire on the Nuclear Consent Switch and operate the controls using approved checklists when weapon jettison is authorized.

18.6. Avoid populated areas on all flight routes to the maximum extent possible.

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

19.1. Conduct only when directed by appropriate authority.

19.2. Place the B61-3, and -4 Signal Selector switch, if installed, in the normal position.

19.3. Lift the Nuclear Consent switch guards and operate the controls using approved checklists when:

- Weapon jettison is authorized.
- Prearming and release of nuclear weapons is authorized.

19.4. Avoid populated areas on all flight routes to the maximum extent possible.

20. Operations Involving the Lateral Dispersal of Nuclear Weapons for Survival. Lateral dispersal is moving nuclear weapons by ground or air transportation from the main operating base (MOB) to a dispersed operating location (DOL) and subsequent alert operations:

20.1. Laterally disperse weapons from the MOB to a DOL when directed by appropriate authority and according to MAJCOM-approved plans to ensure survival of the strike force before general nuclear release.

20.2. Do not use nuclear weapons for lateral dispersal training, exercises, inspections, or evaluations.

20.3. Transport nuclear weapons to the DOL by ground transportation methods using approved technical data.

20.4. Paragraph 13. applies if transporting nuclear weapons by cargo aircraft.

20.5. Base carrying nuclear weapons on tactical fighter aircraft, in either a strike or nonstrike configuration, on operational considerations and according to the following safety priorities:

- Nonstrike configuration.
- Strike configuration.

20.6. Position nuclear weapon-loaded aircraft in a HAS or alternative shelter according to MAJCOM-approved plans.

20.7. 18.Paragraph 18 applies upon arrival of aircraft at the DOL and subsequent configuration for alert operations. Prepare aircraft to be generated to alert status using approved technical data.

20.8. 15.Paragraph 15 applies to a nuclear weapon-loaded aircraft in a HAS containing conventional munitions.

21. PAL Procedures. Use PAL codes and PAL devices only as directed by appropriate authority.

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