

4 AUGUST 2004



Maintenance

**AIRCRAFT FUEL SYSTEMS MAINTENANCE
AND REPAIR**

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OPR: 442 MXS/LGMC (SMSgt Richard Harter) Certified by: 442 MG/CC (Col George D. Burgess)
Supersedes 442 FWI 21-132, 24 January 2003 Pages: 5
Distribution: F

This instruction implements Air Force Policy Directive (AFPD) 21-1, *Managing Aerospace Equipment Maintenance*. It establishes safety and operating procedures for the 442d Fighter Wing (442 FW) Fuel Systems Maintenance program as determined by Air Force Instruction (AFI) 21-101, *Aerospace Equipment Maintenance Management*, Air Force Occupational Safety Health Standard (AFOSH STD) 91-25, *Confined Spaces*, AFOSH STD 48-137, *Respiratory Protection Program*, and Technical Order (T.O.) 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cell*. The Accessory Maintenance Flight is responsible for accomplishing fuel systems maintenance, repairs, and providing for the storage of external aircraft fuel tanks. These procedures apply to all personnel assigned to the 442 FW Command Post, 442 FW Logistics Group and 442 FW Operations Group. Supervisors, superintendents, and flight chiefs are responsible for ensuring compliance with this instruction.

SUMMARY OF REVISIONS

This revision changes references and updates language, format and directives. A bar (|) indicates a revision from the previous edition.

1. Facilities:

1.1. The primary designated fuel systems maintenance hangar is the A-10 fuel cell hangar bay #1, building 1118. The alternate fuel systems facility is the maintenance bay of the 509th Bomb Wing (509 BW) Fuel Systems. These locations are approved and certified by the 509 BW Fire Department, 509 BW Safety Office, 442 FW safety office, and the 509 BW Bioenvironmental Engineering office.

2. Responsibilities:

- 2.1. The fuel systems supervisor will be responsible for the following:
- 2.1.1. Issue and maintain the Master Entry Permits.
 - 2.1.2. Confined Space Entry Training Plan (CSETP).

- 2.1.3. Emergency Rescue Training Plan (ERTP).
- 2.1.4. Establishing a Tank Entry Checklist.
- 2.1.5. Establishing an Area Checklist.
- 2.1.6. Respiratory Protection Plan for Fuel Cell.
- 2.1.7. Training and certifying personnel to perform fuel system maintenance.
- 2.1.8. Notifying the Fire Department prior to beginning open fuel tank/confirmed space entry maintenance and after completion of maintenance.
- 2.1.9. Designate aircraft configuration prior to entering fuel cell maintenance.
- 2.1.10. Approve all concurrent maintenance activities during fuel systems maintenance.
- 2.1.11. Perform Operational Risk Management evaluations as required or as changes in operational procedures occur.

2.2. Maintenance Operation Center (MOC) will coordinate with the fuel systems supervisor on any aircraft being towed into or out of the fuel systems maintenance hangar.

2.3. 442 Aircraft Maintenance (442 AMX) production supervisor will, prior to delivery of the aircraft to the fuel systems primary or alternate repair areas, ensure that the aircraft is properly configured to facilitate the required maintenance.

- 2.3.1. Dearm aircraft, and download all munitions.
- 2.3.2. Defuel and drain aircraft fuel tanks as required.
- 2.3.3. Render aircraft safe for maintenance.
- 2.3.4. Coordinate flap position with fuel cell maintenance. Place the aircraft flaps in applicable position.

2.4. 442 AMX will, prior to delivery of external aircraft fuel tanks to storage area or external tank repair area, ensure that the tank is properly configured for storage or maintenance.

- 2.4.1. Ensure external tanks are defueled.
- 2.4.2. Ensure external tanks are properly covered.
- 2.4.3. Ensure external tanks are properly identified as to serviceable status.

3. Transient Aircraft:

3.1. When transient aircraft fuel systems support is required in the fuel systems maintenance hangar, personnel from the unit supported will be briefed on and ensure compliance with this instruction and applicable fuel system safety and operating procedures.

4. Controlled Access:

- 4.1. All personnel requiring entry into the fuel systems maintenance bay during open fuel systems maintenance will access the fuel cell main entry control point through the ready room.
- 4.2. Using the ready room telephone calling the fuel cell supervisor will coordinate entry.

4.3. The MOF will additionally be able to access the fuel cell by using their radio. Only intrinsically safe radios, suitable for use in Class 1, Division 1, Group D hazardous areas in which fuel vapors exist will be used.

5. Restrictions:

5.1. No maintenance shall be performed on aircraft while inerting, depuddling, and purging operations are being accomplished.

5.2. Severe Weather.

5.2.1. When thunderstorms/lightening are within 10 nautical mile radius of Whiteman Air Force Base, fuel cell operations shall be suspended. The MOC will notify the fuel system supervisor when lightening/thunderstorms are within 25 miles. The fuel system supervisor shall initiate action to ensure all fuel cell maintenance operations are suspended by the time the severe weather is within 10 nautical miles.

5.2.2. When high winds are in excess of 30 knots or higher are considered dangerous. The MOC will notify the fuel system supervisor who shall take action to suspend all flight line fuel cell maintenance.

5.2.3. When operations are suspended, access panels, filler caps and any other aircraft openings removed for maintenance shall be temporarily closed. When temporarily closing a panel it may not be necessary to use a full complement of fasteners.

6. Towing Procedures for Aircraft Undergoing Fuel Cell Maintenance: Aircraft that requires premature removal shall have the following steps performed:

6.1. All access doors/panels and fuel lines properly secured.

6.2. Danger tags installed on the electrical power receptacle and aircraft battery.

6.3. The battery will be disconnected at all times during open tank maintenance.

6.4. Appropriate Red X entries annotated in the aircraft forms.

7. Equipment:

7.1. The following equipment will be inspected and maintained in accordance with manufacturer's maintenance and inspection criteria, AFOSH Standards and applicable technical order publications.

7.2. The fuel cell shop chief will maintain manufacturer's applicable pamphlets and literature in the fuel cell publications library.

7.3. Exhaust Blower floor trench.

7.4. Hoist, 2 ton Shaw box.

7.5. Bullard air pumps.

7.6. Armstrong air handling system.

7.7. Exhaust blowers purge system.

PATRICK A. CORD, Colonel, USAFR
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 21-101, *Aerospace Equipment Maintenance Management*

AFPD 21-1, *Managing Aerospace Equipment Maintenance*

AFOOSH STD 91-25, *Confined Spaces*

AFOOSH STD 48-137, *Respiratory Protection Program*

T.O. 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cell*

Abbreviations and Acronyms

AFI—Air Force instruction

AFOOSH STD—Air Force Occupational Safety Health Standard

AFPD—Air Force policy directive

CSETP—Confined Space Entry Training Plan

ERTP—Emergency Rescue Training Plan

MOC—maintenance operation center

T.O.—technical order