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Maintenance

WELDING ON AIRCRAFT



COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 21-1, *Managing Aerospace Equipment Maintenance*. It establishes procedures for on aircraft welding. It applies to 18th Wing and associate units at Kadena AB. This publication does not apply to the Air National Guard or US Air Force Reserve.

1. References.

1.1. AFOSH STD 91-5, *Welding, Cutting, and Brazing* and TO 1C-135-2-4-1, *Power Plant Ground Operation and Maintenance*.

2. Responsibilities.

2.1. Maintenance Operations Center (MOC) will:

2.1.1. Notify the appropriate flying squadron Sortie Generation Flight (SGF) of the welding requirements. Notify the Fire Department prior to the beginning of each job.

2.2. SGF will:

2.2.1. Provide fireguard, tug operator, tow team, door operators and sufficient personnel to position the aircraft for welding.

2.2.2. Prepare the aircraft for welding by completing their portion of the Aircraft Welding Fire Safety Checklist (**Attachment 1**).

2.2.3. Notify MOC when personnel and aircraft are ready for Metals Technology.

2.2.4. If welding in Hangar 3560, **North Phase**, notify MOC to have hush house doors closed to prevent the fire detection system from activating.

2.2.5. Request AF Form 592, **Welding, Cutting, and Brazing Permit from Fire Department** (F-15 SGFs not included).

2.3. Fire Department will:

- 2.3.1. Provide standby fire truck at welding site.
- 2.3.2. Complete required fire safety checklists.
- 2.3.3. Issue the AF Form 592 to Metals Technology.
- 2.3.4. Review the completed Aircraft Welding Fire Safety Checklist prior to start of welding.

2.4. Metals Technology will:

- 2.4.1. Dispatch two welding shop personnel with required equipment to the welding site when notified by MOC that the aircraft is ready for welding.
- 2.4.2. Complete the 18th Maintenance Squadron portion of the Aircraft Welding Fire Safety Checklist.
- 2.4.3. Ensure all checklist items are complete and welding area is properly prepared.

3. Procedures.

3.1. Whenever possible, aircraft will be parked in suitable hangars (Buildings 3560, 3660 or contact the Fire Department for authorization to weld in an alternate location) for welding operations. If hangar space cannot be made available, aircraft can be welded while parked in three-sided revetments provided the ground wind speed is 5 knots or less and the ground is dry with no rain anticipated.

3.2. C-130 aircraft can be welded on the hardstands provided wind velocity does not exceed 5 knots. Alternate areas/hangars can be utilized if coordinated on a case-by-case basis with the Fire Department.

3.3. Aircraft requiring silver (hard) soldering will be soldered at any location not in the immediate vicinity of other aircraft or within 100 feet of flammable materials.

3.4. All items under Mobility of Aircraft in **Attachment 1** will not apply for welding/silver soldering operations conducted in open areas.

3.5. Items 5.1, 5.2, 5.5, 5.6 and 5.7 under Welding Equipment in **Attachment 1** will not apply when soldering operations are performed.

4. AF Form 592 will be signed by the Fire Department representative and welding technician and be kept at the welding site during the welding operation.

GARY L. NORTH, Brigadier General, USAF
Commander, 18th Wing

Attachment 1

SAMPLE AIRCRAFT WELDING FIRE SAFETY CHECKLIST

ALL PURPOSE CHECKLIST		PAGE 1	OF 1	PAGES
TITLE/SUBJECT/ACTIVITY/FUNCTIONAL AREA		OPR	DATE	
SAMPLE Aircraft Welding Fire Safety Checklist		18MXS		
NO.	ITEM <i>(Assign a paragraph number to each item. Draw a horizontal line between each major paragraph.)</i>	C/W	DATE	Initials
	<p>1. SAFEGUARDING FUEL SYSTEM</p> <p>1.1. Fuel system closed on aircraft being welded. (MXS)</p> <p>1.1.1. Fuel tank access plates in place. (SGF)</p> <p>1.1.2. Fuel tanks topped off and vent openings closed or covered. (SGF)</p> <p>1.1.3. Fuel lines, valves and manifolds in place, secured, or capped. (MXS)</p> <p>1.2. Fuel systems on adjacent aircraft within 100 feet of welding point closed. (MXS)</p> <p>1.3. Streamers attached to covered fuel vents. (SGF)</p> <p>1.4. Pressure removed from fuel system. (SGF)</p> <p>2. HOUSEKEEPING</p> <p>2.1. Clean area where weld is to be made. (SGF)</p> <p>2.2. Combustible materials removed 35 feet from weld area. (SGF)</p> <p>2.3. Floor clear of any oil or fuel spills. (SGF)</p> <p>2.4. Floor drains checked in area for oil or fuel contamination. (SGF)</p> <p>3. MOBILITY OF AIRCRAFT</p> <p>3.1. Aircraft parking brakes off and wheels chocked. (SGF)</p> <p>3.2. Tug and tow bar hooked to the aircraft. (SGF)</p> <p>3.3. Clear path to permit towing aircraft outside (excluding doors). (SGF)</p> <p>3.4. Tail stand removed. (SGF)</p> <p>4. SAFEGUARDING OTHER WORK</p> <p>4.1. Check area including hangar floor drains with combustible gas analyzer before welding and every 15 minutes during welding. (MXS)</p> <p>4.2. Welding area will be roped off. (MXS)</p> <p>4.3. Welding area will have placards reading "Welding Operations In</p> <p>4.4 Screens, when possible, will be placed around the welding operation. (MXS)</p> <p>4.5. Covers for ultraviolet detector eyes will not be placed over the sensors until the fire department arrives on the scene and will be removed immediately after welding operations have ended. (SGF)</p> <p>4.6. Suspend all other work on aircraft. (SGF)</p> <p>5. WELDING EQUIPMENT</p> <p>5.1. Welding generator clear of aircraft engine and fuel tank vents. (MXS)</p> <p>5.2. Static ground lead clamped to ground plug. (MXS)</p> <p>5.3. Gas cylinders securely fastened to prevent tipping. (MXS)</p> <p>5.4. Regulators and gauges working properly. (MXS)</p> <p>5.5. A minimum of 3 minutes warm up for welding machine. (MXS)</p> <p>5.6. All ground leads or cables positioned as close as possible to the area being welded. (MXS)</p> <p>5.7. Electrical welding equipment components (other than flexible lead cables) kept at least 18 inches above the floor. (MXS)</p> <p>5.8. All coiled welding cable spread out before use to prevent overheating. (MXS)</p> <p>6. FIRE PROTECTION</p> <p>6.1. Fire extinguisher (20-B rating minimum) immediately adjacent of welding operation. (MXS)</p> <p>6.2. Fire extinguisher (80-B rating minimum) within 35 feet of welding operation (MXS).</p> <p>6.3. Assigned fire guard on duty. (SGF)</p> <p style="text-align: center;">----- Signature</p>			