

**DEPARTMENT OF THE AIR FORCE
OGDEN AIR LOGISTICS CENTER (AFMC)
Industrial Support Services
OO-ALC/MAD
Hill Air Force Base, Utah 84056**

**Confined Space Master Entry Plan
MAD 002**

03 September 2002

This Master Entry Plan (MEP) covers procedures for members of the Confined Space Entry Team from the Aircraft Landing Gear Maintenance Shop (MADPML) to enter the ARGON PIT to perform preventative maintenance or repair of Furnace #14, Electric Heat Treat, PM 006999 and Furnace #15, Electric Heat Treat, PM 006932.

1. Location: The **Argon Pit** is located under the heat treat ovens PM 006999 and PM 006932 in the Heat Treat Shop in the South end of Building 507.

2. Description of Workplace: The **Argon Pit** that is located under PM 006999 and PM 006932 is composed of a cement structure 14 feet wide by 48 feet long and is 8 feet deep. The top of the entire pit is covered by a sectional solid heavy steel plate. Access to the pit is gained by removing the chain guard that is attached across the handrail that leads down concrete steps to the pit area. The Argon Pit contains the following equipment: A portion of the two electric Heat Treat Ovens that sit within the pit which are 12 feet in height and 3 feet in diameter; microvac pumps; V-belts; vacuum booster and blower pumps. MADPML maintenance personnel enter the pit to perform periodic maintenance or repair on this equipment.

3. Tasks/Operations to be Performed: The following tasks will be accomplished in accordance with job plans and work control documents for preventative maintenance or repair of ovens:

Every 30 days the following will be accomplished:

. Microvac pump Check oil level. Add as necessary stokes V-lube "F".

Every 90 days the following will be accomplished:

. Microvac pump: Check oil level . Add as necessary stokes V-Lube "F". Verify all V-belts are tensioned and in proper working condition. Adjust or replace as necessary.

Every 180 days the following will be accomplished:

. Microvac Pump: Verify all V-belts are tensioned and in proper working condition. Adjust or replace as necessary.

. Microvac Pump: Check all flange side cover bolts and foundation bolts and tighten when needed

. Microvac Pump: Flush the pump using a detergent type oil.

. Microvac Pump: Drain oil in pump reservoir and flush with a small amount of clean oil refill reservoir.

Every 360 days the following will be accomplished:

- . Mircovac Pump: Verify all V-belts are tensioned and in proper working condition. Adjust or replace as necessary.
- . Microvac Pump: Check all flange side cover bolts and foundation bolts and tighten when needed
- . Microvac Pump: Flush the pump using detergent type oil.
- . Microvac Pump: Drain oil in pump reservoir and flush with a small amount of clean oil refill reservoir.
- . Change oil in Vacuum Booster and Blower Pump the Tow Oil Reservoirs, Bearing Housing (drive end) Reservoir and Gear Housing Reservoir
- . Vacuum booster: Check oil level in the (lip seal reservoir) add as necessary. V-lube “H” oil.
- . Vertical cold wall vacuum furnace: Verify that the bowl of the lubricator in the compressed air header is filled with oil to proper operating level.

4. Chemicals Used:

Name	MSDS	OEL/PPE
V-Lube “F” oil	186272	Below OEL, No PPE required
V-lube “H” oil	178823	Below OEL, No PPE required
Ethylene Glycol	188952	Below OEL, rubber boots and gloves required
SAE #10 oil	96371	Below OEL, No PPE required

5. Technical Data Required: AFOSH STD 91-25, *Confined Spaces*; AFMC 21-127, *Depot Maintenance Plant Management*; Manufacturer’s Tech Data; the MSDS and the current Bioenvironmental Engineering Survey for PEG 507C3.

6. Prevention of Unauthorized Entry: The confined space is labeled CONFINED SPACE – ENTRY BY PERMIT ONLY. Entrance into confined space will be chained off identifying confined space. Attendant will monitor entry point.

7. Potential Hazards:

7.1 Potential Hazard Description: Area entered is under ovens that use argon or nitrogen in the process of heat-treating brakes parts.

- . Any leak will cause oxygen depletion.
- . There is a potential of electrical shock when electrical motors are inspected.
- . There is entanglement hazard when belts are inspected or changed on electrical motors.
- . There is a slipping hazard from Glycol or oil spills.

7.2. Control of Hazards: All hazards are controlled with methods consistent in the current Bio Survey; MSDSs on all products approved for use in this confined space. Lockout tag out requirements will be complied with to eliminate all potential for electrical shock, entrapment and hazardous atmospheres in the confined space. Atmospheric conditions will be monitored and PPE will be worn during confined space entry. An oxygen-sensing

device is permanently located in the Argon Pit and has a loud alarm. If at any time, the alarm sounds the entrant will exit immediately.

8. Entry Procedures:

8.1. Entry Permit Requirement – An AF Form 1024, Confined Space Entry Permit, is required for all entries. Permit will not be issued until confined space meets requirements and acceptable entry conditions specified in paragraphs 8.2 and 8.3 are met.

8.2. Engineering Controls and Isolation Methods (Lockout/Tagout):

Lockout/Tagout procedures will be followed to lockout Electricity, Argon and Nitrogen for PM 006999 and PM 006932 in accordance with OO-the ALC Form 215 attached to the applicable Furnace in the Heat Treat Shop prior to entering the Argon Pit to perform maintenance or repair.

. ELECTRICAL: The circuit breaker for both ovens are located in control panel approx 9 feet from South Wall. E1 is in center of control panel; E2 is far right of control panel. Both switches have a red/black handle; pull switches down. Place padlock through handle.

. ARGON (AR1) and NITROGEN (N1) control valves are located approx 2 feet above pit cover southeast side of furnaces, orange valve handle. Turn ball valve handles clockwise.

8.3. Acceptable Entry Conditions:

- . All lockout/tagout procedures must be complied with.
- . Authorized attendant must be present.
- . Oxygen levels must not be not less than 19.5% not greater than 23.5% in the confined space.
- . Oxygen-sensing device located in pit must be operating properly.
- . The confined space LEL must be less than 10% .
- . Fresh air ventilization will be maintained throughout confined space entry.
- . Mechanic carries towels to immediately clean any glycol or oil spills
- . Availability of Fire Department Emergency Rescue Services confirmed by calling 7-3021.
- . Permit is signed and posted before work begins in the confined space.

9. Authorization:

9.1. Confined Space Entry Team: Will consist of trained and authorized personnel from the Landing Gear Support Shop/MADPML. (See Authorized Entry Supervisor Listing, attachment 2.) The team will consist of two or three people: The entry supervisor the entrant and the attendant In some situations a runner may be required.

9.1.1. Entry Supervisor: Note: Attachment 1 for Authorization List.

- . Maintains a copy of this MEP.
- . Ensures the oxygen-sensing unit is operating properly and is calibrated.

- . Responsible for isolation of the area, the assigning of tasks, briefing the team before entry.
- . Insures acceptable entry conditions listed in paragraph 8.2 and 8.3 are complied with.
- . Authorizes the confined space entry permit.
- . Ensures personnel who are ill or on medication that may affect their ability to safely perform assigned tasks are excused from the operation.
- . Ensures emergency rescue personnel are available.
- . Ensures the entry permit is complete, dated and signed prior to the entry and cancels the permit if conditions are no longer acceptable..
- . Entry Supervisor will act in accordance with all other duties outlined in AFOSH STD 91-25, para 2.13.

9.1.2 Attendant:

- . Responsible for monitoring the entry area and maintaining effective communication with the entrant(s).
- . Must be able to summon help in case of an emergency.
- . Limit entry only to those authorized.
- . In the event of an emergency, order the evacuation of the confined space and calls emergency rescue service or sends a runner to notify emergency response personnel.
- . Remain at the attendant's post and not leave for any reason except self-preservation unless replaced by an equally qualified person.

Note: The attendant may assist the entrant in self-rescue only when assistance can be rendered without his/her body breaking the plane of the confined space entry.

9.1.3. Entrant:

- . Understands task to be performed.
- . Reviews the permit before entry, complying with entry procedures, ensures acceptable conditions exist, wears PPE, alerts attendant of changes in condition.
- . Responds immediately to the attendant's evacuation orders.

9.1.4. Runner:

- . Notifies emergency rescue services calling 911 via base telephone when alerted to do so by the attendant.
- . Assists in non entry rescue.

10. Training: The confined space entry team entry supervisor, attendant, entrant, and runner must have the following training: MAWH Confined Space Course 0523, Annual Site Specific Training, Confined Space Awareness Training and Atmospheric Tester Training. All training shall be documented on individual's AF Form 55, Employee Safety and Health Record.

11. Entry Equipment and PPE:

- . Atmospheric Testing Equipment.
- . Blower for fresh air ventilation.

. PPE includes coveralls, nitrile gloves, safety glasses, safety shoes, rubber boots (when using glycol).

12. Testing: Atmospheres in confined space will be tested and documented by the confined space entry team. Oxygen levels will be tested first . Oxygen levels and must be between 19.5% and 23.5% followed by tests for LEL content. which will be maintained at 10% or less. Testing will be performed with the fresh air ventilation off and with it turned on. An Eagle Tester will be used to check and monitor atmospheres and must be calibrated every thirty days. A permanently installed oxygen sensing unit is located in the pit and has a loud alarm; if the alarm sounds, the entrant will exit immediately.

13. Communication and Observation: The attendant will stand directly outside the confined space opening and verbally communicate with the with the entrant. The attendant will carry a cell phone which will be used to notify rescue personnel at 777-1911 or the attendant will notify a runner to make the emergency call. The attendant cannot leave the confined space unless he/she is relieved by a trained and qualified attendant or for self preservation. See paragraph 10

14. Rescue: The 75ABW/CEF provides rescue support for all confined space entries. The attendant will notify rescue personnel by calling 777-1911 on a cell phone or dispatching a runner to notify emergency rescue services by calling 911 at the nearest base phone. The nearest base phone must be determined before entry and listed on the entry permit.

15. Contractor Interface: Contractors must be informed that work is to be performed in a permit required confined space. Insure information is included in the statement of work. The entry supervisor must coordinate with the contractor on any existing permits and inform the contractor of potential hazardous conditions within the area to be entered. The contractor will immediately inform the owner of the confined space and the entry supervisor of hazards detected in the confined space, when work in the confined space has been terminated before completion and when the work has been completed. The contractor must briefed on the contents of the AFOSH STD 91-25, Chapter 7.

16. Permit Routing and Control: Permit will be kept on file in the MADPML shop for one year with a copy being forwarded to MAD safety.

17. Amendment to the MEP: The MEP must be reviewed at least once a year by the entry supervisor and coordinated by Confined Space Program Team (CSPT) consisting of Bio-environmental Engineering /SGPB, Fire Department/CEF and Base Safety/SEG. Changes at any time to the MEP other than spelling and grammar will void the use of this MEP, require the termination of the confined space entry and must be brought to the attention of entry supervisor, organizational safety office and the CSPT.

18. Coordination:

OO-ALC/MADPML

Date

OO-ALC/MADP

Date

OO-ALC/MAD Safety

Dat

OO-ALC/MAN Safety

Date

OO-ALC/SEG

Date

OO-ALC/SGPB

Date

75 CES/CEF

Date

**CONFINED SPACE MASTER ENTRY PLAN MAD-002
ATTACHMENT 1**

Confined Space Entry Supervisor Authorization

The following personnel assigned to the Aircraft Landing Gear Maintenance Shop (MADPML) are authorized to approve and sign confined space entry permits for work to be performed in the Argon Pit on Furnace #14, Electric Heat Treat, PM 006999 and Furnace #15, Electric Heat Treat, PM 006932.

NAME	OFFICE	PRIMARY/ALTERNATE
James J. Steed	MADPML	Primary
Glen Anderson	MADPML	Primary