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Maintenance

ISOCHRONAL INSPECTION PROCEDURES



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This instruction establishes specific Isochronal (ISO) Inspection responsibilities and applies to all organizations and sections involved with planning, performing, and documenting Aircraft Isochronal (ISO) Inspection actions.

1. Isochronal General. Each aircraft entering isochronal inspection requires a pre-ISO engine borescope inspection, engine performance run, aircraft wash, and pre-dock meeting. A post-dock meeting will be accomplished upon completion of the inspection. If additional maintenance is required upon completion of the inspection, a post-maintenance meeting will be accomplished to ensure all required maintenance actions and pertinent records documentation has been completed. ISO begins at the frontline runs and concludes upon completion of the post-dock meeting. **Attachment 2** outlines the normal ISO flow.

1.1. ISO (Frontline) Engine Run. An ISO engine run (frontline) is required for a performance and operational checkout of engines, props, and gearboxes. Propulsion System Operational Worksheet will be accomplished to establish a pre-dock baseline. An aircraft scheduled for ISO will be available for this run no later than 0700 on the first scheduled day of the inspection. The aircraft must be positioned on a max-power run spot with 28,000 lbs of fuel and the aircraft forms must be available at the aircraft. Two aircraft parking spots must be vacant behind the ISO aircraft to facilitate full-power runs. Repair of discrepancies found prior to the pre-dock will be annotated on AF Form 2410, **Inspection/TCTO Planning Checklist** and assigned an OPR for performing the repairs.

1.2. Pre-Dock Meeting. A pre-dock meeting will be held at 1300 on day 2 of the inspection. Airlift Squadron Plans Scheduling and Documentation will chair the predock meeting. All requirements will be listed on AF Form 2410. All scheduled maintenance (special inspections, time changes, TCTOs, and delayed discrepancies) to be completed during the inspection must be identified/discussed and annotated on AF Form 2410. Aircraft forms will be reviewed. Any limiting factors that may affect the inspection and any jobs listed that will not be accomplished, as agreed to during the meeting, must be documented on the AF Form 2410. All section/flight representatives will sign AF Form 2410 indicating shop concurrence with discussion items annotated. The original AF Form 2410 will be given to

the Dock Chief for the basic inspection with one copy maintained in suspense by Airlift Squadron Plans Scheduling and Documentation.

1.3. Representatives at the predock will include, as a minimum, the following personnel:

- 1.3.1. MXS Production Superintendent (MXS-3).
- 1.3.2. Dedicated Crew Chief/Assistant Crew Chief (DCC/ACC).
- 1.3.3. Airlift Squadron Plans Scheduling and Documentation.
- 1.3.4. Airlift Squadron (AS) Production Superintendent.
- 1.3.5. Isochronal Inspection Section Coordinator/Dock Chief/Assistant.
- 1.3.6. Engine Management Branch (EMB) representative.
- 1.3.7. Other maintenance agencies may be required to attend as determined by the Airlift Squadron Plans Scheduling and Documentation representative, the Maintenance Superintendent, or Dock Chief.

1.4. Special ISO Inspections: Special inspections done in conjunction with ISO such as 48 month leading edge removal and/or full fuselage, empennage, and wing re-torques may add up to 4 days to the ISO schedule. Actual time will be set at the pre-dock when the requirements are made known.

1.5. Non-Destructive Inspection (NDI). When required, the majority of NDI should be performed on the first Saturday after ISO begins. ISO Inspection Section Coordinator will coordinate with NDI to ensure the aircraft and hangar are properly prepared for the inspection.

1.6. ISO Inspection. An aircraft undergoing a minor isochronal inspection (#1, #2, or #3) will be scheduled for 12 workdays to complete the inspection (see ISO flow at [Attachment 2](#)). Aircraft undergoing a major isochronal inspection (#4) will be scheduled for 14 workdays. As noted in paragraph [1.4.](#), special inspections may add up to 4 days to the scheduled ISO days. Most discrepancies discovered during ISO should be corrected during the fix phase of the inspection. The inspection section is responsible for correcting discrepancies in order of precedence (assuming the parts are on hand) until either all items are complete or the aircraft is post-docked on its scheduled day.

1.7. Post-Dock Meeting. The post-dock meeting will be conducted by Airlift Squadron Plans Scheduling and Documentation, on the last scheduled day of the inspection, using the AF Form 2410 as the source document. The ISO is considered complete when the backline engine runs are complete, the post-ISO pressure checks are complied with, the aircraft forms have been transcribed, and G081 discrepancies have been cleared for completed maintenance. This meeting will verify completion of all requirements agreed to at the pre-dock meeting, any delayed discrepancies completed during the inspection, status of back ordered parts verified, and any remaining open discrepancies. Additionally, a performance run sheet will be annotated prior to post-dock and provided to the AS and EMB for file.

1.8. Representatives at the post-dock will include, as a minimum, the following personnel:

- 1.8.1. MXS Production Superintendent (MXS-3).
- 1.8.2. AS Production Superintendent.
- 1.8.3. DCC/ACC.
- 1.8.4. Airlift Squadron Plans Scheduling and Documentation.

1.8.5. Isochronal Inspection Section Coordinator/Dock Chief/Assistant.

1.8.6. Engine Management Branch (EMB) representative.

1.8.7. Other maintenance agencies may be required to attend as determined by the Airlift Squadron Plans Scheduling and Documentation representative, the Maintenance Superintendent, or the Dock Chief.

1.9. If an aircraft requires post-ISO heavy maintenance, the DCC/ACC accompanying the aircraft through ISO will accept responsibility for the aircraft forms upon completion of the inspection post-dock meeting. The 43d MXS will retain management responsibility for the aircraft.

1.10. Airlift Squadron Plans Scheduling and Documentation will retain the original copy of the completed inspection package, and one copy of the AF Form 2410 will go to the Dock Chief.

2. Operations Group (OG) Maintenance Support. The owning aircraft Airlift Squadron (AS) will provide a dedicated crew chief and assistant crew chief (DCC/ACC) for each ISO aircraft. A list of DCC/ACC duties can be found in [Attachment 3](#).

2.1. Appointments to include training for crew chiefs assigned to the ISO aircraft must be held to an absolute minimum and a replacement must be sent to ISO if the individual will be absent for more than 4 hours.

2.2. AS avionics specialists must report to begin their ISO workcards no later than 0700 on day 5 of the ISO, and must have the look phase of their inspections completed by close of business on day 7.

3. Heavy Maintenance. If the estimated time in commission for any shop exceeds the scheduled fix phase, that maintenance will be considered heavy maintenance. Heavy maintenance will be accomplished after the post-dock is complete, and the status of the aircraft will be changed to the longest maintenance driver. Progress/coordination will be briefed daily at the 1400 maintenance meeting. In cases where heavy maintenance exists, the 43d MXS will retain management responsibility for the aircraft until all heavy maintenance is complete. At the completion of heavy maintenance, or a work stoppage due to lack of parts (AWP), management transfer of the aircraft back to the appropriate AS will be discussed at the daily 1400 maintenance meeting.

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Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AMCI 21-101, *Maintenance Management Policy*

Abbreviations and Acronyms

ACC—Assistant Crew Chief, AS

ACFT—Aircraft

AF—Air Force

AFB—Air Force Base

AS—Airlift Squadron

AMU—Aircraft Maintenance Unit

APG—ISO Crew Chief, 43 MXS

AR—Aero Repair, 43 MXS

ASAP—As Soon AS Possible

AWP—Awaiting Parts

COMM/NAV—Communication/Navigation, AS

DCC—Dedicated Crew Chief, AS

E & E—Electrical/Environmental, 43 MXS

EMB—Engine Management Branch

ENG—Engine, 43 MXS

HYD—Hydraulic, 43 MXS

ISO—Isochronal

LGMT—Maintenance Flight, 43 MXS

LOX—Liquid Oxygen

MXS—Maintenance Squadron

NDI—Non-Destructive Inspection

NLG—Nose Landing Gear

NMC—Non-Mission Capable

OPR—Office of Primary Responsibility

PMC—Partially Mission Capable

SM—Sheet Metal, 43 MXS

TCTO—Time Compliance Technical Order

TNB—Tail Number Bin

Attachment 2**ISOCHRONAL FLOW****A2.1. DAY 1—ISO.**

A2.1.1. NLT 0700, the AS will provide the scheduled aircraft to ISO. ISO and ENG personnel will accomplish pre-run, engine efficiency runs, leak checks, and inspect aircraft windscreens for serviceability.

A2.1.2. When complete, ISO will turn the aircraft back over to the AS to accomplish ISO wash preps.

A2.1.3. The AS will begin the following preps:

A2.1.3.1. On #1 and #3 minor inspections: Fuels personnel will conduct a fuel jettison system check. All main tanks must have a MINIMUM of 3,500 lbs. of fuel. The auxiliary/external tanks must have 500-1000 lbs. of fuel.

A2.1.3.2. On all inspections the AS will defuel all fuel tanks to zero fuel quantity (Only after fuel shop has performed fuel jettison system operational check on #1 and #3 minors). Prep for wash (including removing beeswax from sloping longeron), remove -21 equipment and top off the LOX system

NOTE: 0 lbs of fuel will be on the ACFT unless a specified amount is required for other maintenance.

NOTE: Flaps must be lowered 100 percent.

A2.2. DAY 2—PRE-DOCK.

A2.2.1. The pre-dock should be accomplished at 1300.

A2.3. DAY 3—AIRCRAFT WASH.

A2.3.1. The AMU will complete the wash preps. **NOTE:** -21 equipment must be removed prior to towing aircraft to the wash rack.

A2.3.2. AS will begin the aircraft wash.

A2.3.3. AS will complete the wash/lube, ISO will inspect and accept.

A2.3.4. ISO will prep the aircraft and coordinate with E&E to perform pre-ISO pressurization check. All leaks will be marked. The pressure will be recorded in 781A. A copy of the pressurization sheet will be provided to the coordinator for the DCC/ACC to assist in sealant repairs.

A2.3.5. ISO tows aircraft to hangar 6-center bay 1.

A2.4. DAY 4—ISO PREP/LOOK PHASE.

A2.4.1. After pressurization, all required panels will be removed, inspected, and stowed.

A2.4.2. Look Phase begins:

A2.4.3. (AR). If required, remove and route torque struts, inspect flap jackscrews, and throttle tension regulators.

A2.4.4. (ENG). Inspect for potential engine or prop change conditions; begin removal of affected engines or props.

A2.4.5. (ISO, SM). Inspect known crack/corrosion locations, belly rivets, flight deck chine plates, and prep aircraft for NDI x-ray and special inspections.

A2.4.6. (APG). Inspect throttle, condition lever, and flight control cables. Remove and inspect leading edges prior to the bleed air duct inspection or other maintenance as required.

A2.4.7. (ENG, APG). Begin removal of applicable time change items, leading edges, sway brace bolts, and external tanks as required.

A2.4.8. Nose jack for I-bolt inspection, accomplish trunnion cap NDI, steering bolts and tow fitting inspection. Pull NLG tires for piston axle inspection (#1 and #3 ISO).

A2.4.9. Fuels personnel will perform water screen inspections on all main tanks.

A2.5. DAY 5—LOOK PHASE/FIX PHASE.

A2.5.1. All areas continue the look phase and preps for special inspections.

A2.5.2. (ENG). Complete carded items, start zonal inspection, and begin fix phase; complete all discrepancies found during the pre-run.

A2.5.3. (SM, E&E, HYD). Complete preps and carded inspection requirements; begin fix phase.

A2.5.4. (NDI). Continue with carded inspection.

A2.5.5. (FUELS). Complete all carded inspection items.

NOTE: All parts must be ordered by 1600, NMC & PMC parts must be ordered ASAP.

A2.6. DAY 6—FIX PHASE.

A2.6.1. All areas continue to complete carded, zonal, and lube requirements; reinstall removed components and continue with fix phase.

A2.6.2. (E&E, HYD). Install electrical power and hydraulic limiting components (as applicable).

A2.6.3. (ENG). Continue fix phase; begin engine rig and perform service checks.

A2.6.4. (AR & ISO). Prep and jack aircraft for AR. No load wings for wing bolt NDI inspection (if required) and order required parts ASAP.

A2.6.5. (ALL SHOPS). Begin inspections requiring the aircraft to be on jacks and then perform leak and ops checks on affected systems.

A2.6.6. (DCC, ACC). Replace wheels/brakes as required and check tire pressure.

A2.7. DAY 7—FIX PHASE.

A2.7.1. Continue with fix phase.

A2.7.2. (ALL SHOPS). Complete all fix phase discrepancies; accomplish seven level follow-ups, and de-FOD aircraft.

A2.7.3. (DCC, ACC). Completes repairs (per coordinator) and completes sealing air leaks.

A2.7.4. (AR). Begin inspection, maintenance, and operational checks of flight control and landing gear; begin time changes on main struts, nose struts, and MLG ballscrews.

A2.7.5. The ISO coordinator will verify if any panels need to remain off for further maintenance.

A2.8. DAY 8—QUALITY ASSURANCE.

A2.8.1. (E&E). Install bleed air system components and complete inspection.

A2.8.2. (HYD). Install components and complete carded items as applicable.

A2.8.3. (Dock Chief). Verify forms completion and coordinate with QA for evaluation.

A2.8.4. (ALL SHOPS). Prepare aircraft for QA arrival and inspection. While QA is inspecting, area chiefs will accompany inspectors to assist in correcting and validating any discrepancies.

A2.8.5. All discrepancies found by QA will be corrected at this time.

A2.8.6. (AR, ISO). Down jack aircraft.

A2.9. DAY 9—REPANEL/TOW.

A2.9.1. (AR, ISO, HYD, E&E). Complete final repairs/leak checks and install panels.

A2.9.2. Complete final pressure check and install panels.

A2.9.3. Tow to max power run spot for engine runs.

A2.9.4. Refuel and bleed brakes for performance runs, leak checks, and adjustments.

A2.10. DAY 10—BACKLINE.

A2.10.1. (DCC, ACC). Assist with runs.

A2.10.2. (ISO, ENG). Complete engine runs and dispatch specialists as required.

A2.10.3. (COMM/NAV). Perform carded post-ISO checks.

A2.11. DAY 11—BACKLINE.

A2.11.1. (ISO, ENG). Continue backline runs as necessary.

A2.12. DAY 12—BACKLINE/POST-DOCK.

A2.12.1. (DCC, ACC, Coordinator). Perform final walk around and start post-dock procedures.

A2.12.2. (Dock Chief, Coordinator). Attend post-dock and transfer aircraft.

NOTE: For #4 major inspections, add two days after day 4 for ISO, AR, and COMM/NAV to complete additional requirements. Jacking associated with #1 and #3 ISOs will be coordinated during the flow on a case-by-case basis.

Attachment 3**DEDICATED CREW CHIEF RESPONSIBILITIES**

A3.1. The following list contains DCC/ACC responsibilities during ISO inspections. It is based on input from the Airlift Squadrons and Maintenance Squadron, as well as standards outlined in AMCI 21-101. These responsibilities will be briefed to the DCC/ACC at the pre-dock meeting.

- A3.1.1. Both the DCC and ACC are responsible to the ISO Dock Chief during ISO.
- A3.1.2. DCC/ACC must report to the dock chief immediately following their roll call at the AS. ISO begins at the frontline runs and concludes upon completion of the post-dock meeting or heavy maintenance following the ISO.
- A3.1.3. The ISO Dock Chief has the authority to assign shifts as well as weekend work if necessary.
- A3.1.4. All appointments already established will be provided to the Dock Chief on the first day of ISO.
- A3.1.5. Facilitate completion of deferred or existing discrepancies in both the 781A and 781K deemed practical by the AS and Dock Chief at the pre-dock.
- A3.1.6. Install all TNB parts deemed practical by the AS and Dock Chief at the pre-dock.
- A3.1.7. Maintain aircraft forms and G081 accuracy throughout the ISO process.
- A3.1.8. Remove and replace defective windows
- A3.1.9. Remove life rafts and emergency equipment (when required).
- A3.1.10. DCC/ACC will monitor LOX quantities and service when necessary to preclude purging. In the event the LOX quantity reaches zero, the DCC/ACC is responsible for purging the system. If LOX system maintenance will be conducted, which would require a purge, servicing is not required.
- A3.1.11. Seal leaking areas identified during pre-ISO cabin pressurization check.
- A3.1.12. When an aircraft has completed post-dock, but must have heavy maintenance performed, the crew chief will report aircraft status and condition to MXS-3 at the end of the duty shift.
- A3.1.13. Provide support for preps/recovery as needed during heavy maintenance to include (but not limited to): jack, tow, refuel/defuel, and removal of equipment to facilitate heavy maintenance.
- A3.1.14. Report to AS duty section at the end of each day to maintain communication and receive any new training or other appointments.
- A3.1.15. Any new appointments established during the ISO will be coordinated with the Dock Chief ASAP following notification.
- A3.1.16. Appointments or training resulting in loss of an individual from ISO for 4 hours or more will require a replacement from the AS.
- A3.1.17. Attend the pre-dock and post-dock meetings.