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SECRETARY OF THE AIR FORCE**



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**AIR AND SPACE EQUIPMENT
STRUCTURAL MANAGEMENT**

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This Air Force Instruction (AFI) designates an Executive Command to provide Air Force (AF) structural technical/engineering support for air and space assets that utilize technologies in the structural disciplines of Advanced Composites (AC), Coatings Technology Integration (CTI), Corrosion Prevention and Control (CPC), Low Observables Supportability (LOS), Metals Technology (MT), and Nondestructive Inspection (NDI) for non-facilities assets. It provides direction associated with policy as applicable to structural management in Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*, and AFPD 20-1/63-1, *Acquisition and Sustainment Life Cycle Management*. This instruction applies to all major commands (MAJCOMs), the Air National Guard (ANG), Air Reserve Components (ARC) and their subordinates. This publication may be supplemented, but supplements must be provided to the OPR of this publication for review prior to publication. Requests for waivers must be processed through command channels to this publication OPR for consideration. Refer recommended

changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route AF Form 847s from the field through the appropriate functional’s chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW the AF Records Disposition Schedule (RDS) located in the Air Force Records Information Management System (AFRIMS).

(AFRC) This supplement implements and extends the guidance of Air Force Instruction (AFI) 20-114, *Air and Space Equipment Structural Maintenance*. This supplement describes Air Force Reserve Command procedures to be used in conjunction with the basic instruction. This supplement applies to AFRC unit equipped (UE) organizations, Active Associate and Air Reserve Component Associates when AFRC is the lead. This supplement does not apply to Air National Guard (ANG) or AFRC Classic Associate maintenance units, but does apply to LRS functions at AFRC Classic Associates. Refer recommended changes, supplements and questions about this publication to AFRC/A4OP through the appropriate functional chain of command and NAF. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication through appropriate functional chain of command using the AF Form 847, *Recommendation for Change of Publication*, to HQ AFRC/A4OP, 155 Richard Ray Blvd. Robins AFB, GA 31098-1635. . See Attachment 1 for a glossary of references and supporting information. Tier 2 waiver authority is delegated to HQ AFRC/A4 for this publication.

SUMMARY OF CHANGES

This interim change revises AFI 20-114 by requiring compliance with AFI 90-201, *The Air Force Inspection System*, for coordination and scheduling of surveys, adds waiver guidance to Opening Paragraph, de-scopes surveying all activities to representative activities, revises requirement for “conferences” to AF Corporate Process activities, updates References, and adds Corporate Process Activities to Terms.

(AFRC) This supplement has been updated with the following significant changes; adding “Tier” waiver authority to compliance items throughout the supplement; including MAJCOM coordination for submitting waivers; changes to aircraft art requirements outlined in Chapter 10; and deletion of MC/C-130 guidance.

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1. Overview. Note: There are two categories of assets associated with the structural enterprise: facilities (e.g., buildings, utilities infrastructure, and real property installed equipment as defined in AFI 32-9005, *Use of Real Property Facilities*) and non-facilities air and space equipment (e.g., aircraft/missiles and associated subsystems, support equipment and components). This publication only addresses requirements and responsibilities for non-facilities AF air and space equipment.

1.1. **Objective.** The objective of effective structural management is to optimize safety, serviceability and readiness throughout the life cycle of air and space equipment. Structural management, as addressed in this publication, refers to activities associated with requirements development, design, maintenance, and integrity monitoring-assessment of air and space physical structural equipment. Activities acquiring air and space assets are to strive for design and select material/coatings, while balancing cost and performance, to minimize structural degradation. Structural management includes structural material technology (including coatings) and structural integrity of aircraft (manned and unmanned) and non-aircraft. Note: Refer to AFI 63-1201, Life Cycle Systems Engineering, for guidance on non-facilities integrity programs. Structural sustainment disciplines directly involve AFSC 2A7XX and equivalent civilian workforce.

2. STRUCTURAL MANAGEMENT.

2.1. **General.** This publication addresses management oversight for the structural disciplines of: Advanced Composites (AC), Coatings Technology Integration (CTI),

Corrosion Prevention and Control (CPC), Low Observables Supportability (LOS), Metals Technology (MT), and Nondestructive Inspection (NDI).

2.2. Descriptions of Disciplines. Structural disciplines as referred to in this publication are:

2.2.1. Advanced Composites is the use of advanced composites, materials consisting of two or more distinct components.

2.2.2. Coatings Technology Integration is the testing, evaluation, characterization, and qualification of organic/inorganic coating systems. It includes the equipment and processes associated with the application, removal, and maintenance of coating systems. **Note:** “Organic” refers to chemical compounds chiefly composed of carbon, hydrogen and oxygen in a multitude of molecular arrangements. “Organic coating” refers to a coating or paint that is a carbon based liquid or semi-liquid material, and is applied to a surface by some mechanical means and which, when dried or cured, will provide an adherent film of certain desired characteristics. (Additional detail is contained in TO 1-1-8, *Application and Removal of Organic Coatings, Air and Space and Non-Air and Space Equipment.*)

2.2.3. Corrosion Prevention and Control is the prevention, assessment, detection and control of damage and effects of corrosion to ensure structural integrity of systems and associated supporting equipment and components.

2.2.4. Low Observables are the technologies to control the radar, infrared, visual and acoustic signatures for reducing threat sensor detection.

2.2.5. Metals Technology is the involvement of measurement, inspection (visual/optical), repair, manufacture, fabrication, heat treatment, welding and testing of metal parts for aircraft, equipment, components and tools.

2.2.6. Nondestructive Inspection is the inspection of a structure or component that will detect flaws, measure geometric characteristics, determine material structure or composition or characterize physical, electrical or thermal properties without causing changes in the part or impairing future usefulness.

3. ROLES AND RESPONSIBILITIES

3.1. Assistant Secretary of the Air Force / Acquisition (SAF/AQ) will: Develop policy and issue guidance associated with life cycle requirements of structural management.

3.2. Air Force Deputy Chief of Staff / Logistics, Installations and Mission Support (AF/A4/7) will:

3.2.1. Promote initiatives, develop policy and issue implementation direction/guidance that enhance effectiveness of structural materials and fabrication maintenance and resolve training issues IAW AFI 36-2201, *Air Force Training Program*.

3.2.2. Develop and implement technician/artisan certification and recertification standards applicable to structural maintenance.

3.3. Air Force Materiel Command (AFMC) will:

3.3.1. Function as the executive MAJCOM for AF oversight and enterprise integration of activities among the structural disciplines of AC, CTI, CPC, LOS, MT, and NDI.

3.3.2. Support cross-cutting technologies and solutions in the structural disciplines for AF air and space assets at all maintenance levels.

3.4. **Air Force Space Command (AFSPC) will:** Provide integrated life cycle oversight for non-facilities structural management on Space programs.

4. REQUIREMENTS AS RELATES TO STRUCTURAL DISCIPLINES.

4.1. MAJCOMs (including ANG) will:

4.1.1. Support enterprise integrated life cycle oversight of structural management and implementation of processes to enhance structural material fabrication and maintenance effectiveness.

4.1.2. Assign MAJCOM functional manager(s) to structural disciplines as determined by and applicable to the specific MAJCOM.

4.1.3. Ensure personnel performing NDI inspections are certified IAW AFI 21-101, *Maintenance Management of Aircraft*, and/or *National Aerospace Standard Certification & Qualification of Nondestructive Test Personnel* (NAS 410) as applicable.

4.1.4. Develop and issue implementation direction/guidance to Units for NDI training and certification requirements.

4.1.5. Ensure contracts supporting MAJCOM maintenance activities that include contracted NDI personnel contain provisions for certified personnel IAW NAS 410 and that the certification is validated.

4.1.6. Plan, program and budget resources to provide technical structural management support for MAJCOM-specific programs/requirements:

4.1.7. Provide Subject Matter Expert (SME) support for Technical Order (TO) change validation/verification processes.

4.1.8. Provide appropriate inspection requirements as needed for the development of equipment descriptions and specifications for central procurement.

4.1.9. Support field testing of materials, processes, equipment, proficiency testing and/or probability of detection (PoD) studies in operational and depot environments.

4.1.10. Participate, as applicable to the MAJCOM structural disciplines, in periodic MAJCOM-specific surveys and base assessments.

4.1.11. Provide inspection results on any of the AF structural maintenance disciplines to the respective AFMC structural management activity. **Note:** The respective AFMC activity utilizes inspection results for trending and to identify representative MAJCOM activities for survey.

4.1.11. (AFRC) Info Copy AFRC/A4MY and NAF/A4M when forwarding results to AFMC.

4.2. **Program Managers (PMs)/Product Group Mnanagers (PGMs) will: Note:** Overall authority-accountability-responsibilities of PMs are IAW with DOD 5000 series direction and AFI 63-101, *Acquisition and Sustainment Life Cycle Management*.

4.2.1. Coordinate with and/or inform stakeholder MAJCOMs, i.e., AFMC/AFSPC and Lead Command regarding system facilities, tooling, equipment, test, technical data and training requirements impacting the structural disciplines addressed in this publication.

4.2.2. Ensure PM/PGM initiated contract support requirements for NDI personnel contain provisions to have certified personnel IAW NAS 410 and that the certification is validated by the NDI Office.

4.2.3. Evaluate the impact of proficiency testing or PoD results against MIL-STD-1530C, *Aircraft Structural Integrity Program (ASIP)*. Refer to the *Joint Service Specification Guide for Aircraft Structures (JSSG-2006)* for additional information.

4.2.4. Notify MAJCOM stakeholders of program advisory boards associated with structural disciplines.

4.2.5. Advise stakeholder MAJCOMs, e.g., AFMC/AFSPC and Lead Command, on results of TCTOs impacting structural management and affecting safety, status and disposition of safety-related AFTO Form 252s and 22s, and flaw data on safety structures.

4.3. **AFMC** (in addition to requirements at Para 4.1) **will:**

4.3.1. Provide AF enterprise structural management integrated life cycle engineering and technical support to MAJCOMs, PMs/PGMs, other AF offices and AF advisory boards for design, test, redesign, analysis and sustainment of assets associated with structural disciplines. This includes:

4.3.1.1. Material/proficiency testing processes and studies; development of methods and equipment; and life cycle management planning.

4.3.1.2. Development, implementation, and standardization of procedures and processes to enhance structural materials fabrication and maintenance effectiveness:

4.3.1.2.1. Coordinate with/obtain concurrence from Air Force Space Command (AFSPC) on procedures and process that apply to Space Programs.

4.3.1.2.2. Support development and/or revision of standards, procedures and processes, and advise in the acquisition, processing and interpretation of data.

4.3.1.2.3. Ensure currency, applicability, completeness and designation of AF managers for the TOs listed at Attachment 2.

4.3.1.2.4. Provide safety-related inputs associated with structural disciplines to AF Occupational Safety and Health (AFOSH) publications, e.g., STDs 91-5, *Welding, Cutting, and Brazing*, and 91-501, *AF Consolidated Occupational Safety Standard*.

4.3.1.3. Evaluation, as requested by MAJCOMs and PMs/PGMs, of materials, processes, facilities and equipment requirements for structural impacts.

4.3.1.4. Viability assessment of emerging material and repair technologies in structural disciplines and assistance with transition to new and existing systems, to include participation in field-tests as requested by PMs/PGMs on material and process technologies.

4.3.2. Coordinate with ESOH offices of primary responsibility (OPRs) to assist users in meeting applicable ESOH requirements.

4.3.3. Conduct command-specific structural management surveys and assessments of representative number of activities, statistically derived by the respective AFMC structural management activity; coordination and scheduling being consistent with AFI 90-201, *The Air Force Inspection System*.

4.3.4. Promote standardization and/or interoperability of equipment, data systems and software programs associated with structural-related disciplines.

4.3.5. Support Air Force Career Field Managers (AFCFMs), MAJCOM Functional Managers, Air Education and Training Command (AETC) Training Managers, Utilization and Training Workshops (U&TWs), and Career Development Course (CDC) writers for education and training of AFSCs 2A7XX personnel.

4.3.6. Advanced Composites. Serve as the focal point for AF composites support to guide the integration and maintenance support by overseeing composites-related activities throughout the AF and providing technical support to users.

4.3.6.1. Assist PMs/PGMs, Aircraft Battle Damage Repair (ABDR) Office, and MAJCOMs in supporting deployable rapid-repair capability for advanced composite structures.

4.3.6.2. Conduct, upon request of MAJCOMs or field maintenance activities, assistance visits to identify and resolve AC repair-related issues.

4.3.6.3. Ensure minimum facility, tooling and equipment guidelines for generic advanced composites supportability processes are IAW TO 1-1-690, *General Advanced Composite Repair Processes Manual*.

4.3.6.4. Conduct AF corporate process activities (See Terms, "Corporate Process Activities") to identify, discuss and resolve enterprise composites repair issues. Include AF personnel from all structural maintenance levels as well as other DOD composite design and repair personnel.

4.3.7. Coatings Technology Integration. Provide technical support to AF users on coatings test, evaluation and characterization activities.

4.3.7.1. Serve as AF liaison to organizations that maintain coating specifications and standards utilized by the AF.

4.3.7.2. Support development of:

4.3.7.2.1. Procurement vehicles associated with coatings-related materials and equipment to include qualification testing and the required laboratory certifications needed for qualification testing, specification development and maintenance, and technical order support.

4.3.7.2.2. Test and evaluation criteria to define the performance of the organic coating systems.

4.3.7.2.3. Characteristics of coating systems for defining the window of application, removal and repair.

4.3.7.2.4. Integration testing and scale-up for defining the processes that marry the coating system to the application and removal equipment.

4.3.7.2.5. Improved laboratory and field level test methods.

4.3.8. Corrosion Prevention and Control. Provide technical support for corrosion prevention, mitigation and control on AF air and space systems, including guidance to associated activities throughout the AF.

4.3.8.1. Provide support to the AF Corrosion Control and Prevention Executive (CCPE).

4.3.8.1.1. Provide to the CCPE an annual report detailing health of air and space assets' corrosion prevention and control within the AF.

4.3.8.1.2. Support the AF Corrosion Prevention Advisory Board (AFCPAB).

4.3.8.1.3. Conduct an air and space assets AF Cost of Corrosion Maintenance Study at the request of the CCPE or at least every 5 years, and report findings to the CCPE.

4.3.8.2. Review and validate master facilities requirements for air and space assets' corrosion maintenance operations at all levels.

4.3.8.3. Survey representative MAJCOM air and space assets' corrosion prevention and control operations/activities at the request of a MAJCOM functional manager or at least every 5 years. Pre-survey planning shall be coordinated with the MAJCOM Functional Manager, receiving the visit, who will interface with the MAJCOM Gatekeeper to establish the schedule, refer to AFI 90-201 for additional detail.

4.3.8.4. Perform site assistance to address:

4.3.8.4.1. Specific field, PM/PGM or MAJCOM concerns.

4.3.8.4.2. Field tests, command/agency surveys, resolution of materials-related difficulties, and in-service equipment problems, when requested.

4.3.8.5. Conduct an annual AF corporate process activity (See Terms, "Corporate Process Activities") to cross flow/resolve corrosion prevention and control issues with air and space assets maintenance personnel and engineers.

4.3.8.5.1. Participate in corrosion materials and process technology exchange forums and joint sustainment activities within the AF, other services, DOD, Government agencies and industry.

4.3.8.5.2. Develop and publish pertinent information and promotional materials through messages and a website to facilitate proficiencies of CPC maintenance activities.

4.3.8.6. Support research and development (R&D) when requested.

4.3.9. Low Observables. Ensure integrity, reliability and maintainability of AF LO materials, repair processes, nondestructive inspections, signature diagnostic measurements, and signature health assessments.

- 4.3.9.1. Support the AF Low Observables Integrity Program (LOIP). Manage MIL-HDBK-513A, *Air Vehicle Low Observable Integrity Program (LOIP) General Guidelines*.
- 4.3.9.2. Assist/coordinate with the appropriate offices on changes to LO facilities, equipment, testing, materials and processes at the system level when they impact LO integrity, reliability and maintainability or when they impact common LO assets.
- 4.3.9.3. Organize and/or participate in AF LO executive councils, advisory boards, independent review teams and aircraft LO working groups, and serve as the AF focal point for interservice LO integrity and supportability-related meetings.
- 4.3.9.4. Survey representative activities at least every five years or at the request of a MAJCOM for LO issues/concerns to assist in prioritizing future LO projects. Pre-survey planning shall be coordinated with the MAJCOM Functional Manager, receiving the visit, who will interface with the MAJCOM Gatekeeper to establish the schedule, refer to AFI 90-201 for additional detail.
- 4.3.10. Metals Technology. Serve as the focal point for AF Metals Technology to activities throughout the AF, and provide technical support to users. Lead AF specific MT conferences to identify, discuss and resolve AF enterprise MT issues.
- 4.3.10.1. Establish MT standard equipment requirements with the assistance/coordination of PMs/PGMs and MAJCOMs.
- 4.3.10.1.1. Provide engineering and technical support for procurement, repair and maintainability of centrally procured MT equipment, and serve as the engineering authority for centrally procured MT equipment.
- 4.3.10.1.2. Evaluate new equipment to ensure adequate testing is accomplished prior to its fielding and to ensure equipment meets AF requirements for safety, deployability, sensitivity, repeatability, reliability and maintainability.
- 4.3.10.2. Ensure appropriate guidance for welding certification is established.
- 4.3.10.3. Serve as the AF focal point to joint MT corporate process activities (See Terms, "Corporate Process Activities"); liaison to organizations of MT specifications, handbooks, and standards, such as American Society for Metals, American Society for Testing and Materials, Society of Automotive Engineers, American Welding Society; and provide interpretation to users.
- 4.3.11. Nondestructive Inspection. Serve as the focal point for AF NDI support to maintenance by overseeing NDI-related activities throughout the AF and providing technical support to users. **Note:** NDI shall be accomplished IAW TO 33B-1-1, *NDI Methods, Basic Theory*, and TO 33B-1-2, *Nondestructive Inspection General Procedures and Process Controls*. Nondestructive Inspections include methods requiring specific long term training (formal and OJT) and qualifications. Personnel performing NDI inspections must be certified IAW AFI 21-101 and/or NAS 410 as applicable.
- 4.3.11.1. Provide PMs/PGMs and MAJCOMs verifiable engineering inspection reliability data by conducting PoD and proficiency studies IAW MIL-HDBK-1823, *Nondestructive Evaluation System, and Reliability Assessment* and MIL-STD-1530C,

Aircraft Structural Integrity Program (ASIP), every five (5) years or sooner when requested by MAJCOMs or PMs/PGMs.

4.3.11.2. Establish NDI requirements with the assistance/coordination of the PMs/PGMs and MAJCOMs.

4.3.11.3. Evaluate new equipment to ensure adequate testing is accomplished prior to its fielding and equipment meets AF requirements for safety, deployability, sensitivity, repeatability, reliability and maintainability.

4.3.11.4. Review and validate master facilities requirements for NDI operations.

4.3.11.5. Oversee AF implementation of NAS 410 for NDI personnel.

4.3.11.5.1. Establish and maintain the process for the qualification and certification of all AF NDI personnel required to be certified IAW the requirements of AFI 21-101. The process for qualification shall be coordinated with MAJCOMs and provided to the applicable Military Career Field Managers for the military personnel and to the Logistics Civilian Career Field Manager for civilian personnel. At a minimum, the process shall include procedural details necessary to implement NAS 410 qualification and certification and shall include, either directly or by reference, the details of the NDI qualification and certification process.

4.3.11.5.2. As requested by MAJCOM units, provide onsite training or testing for certification or recertification to NDI personnel.

4.3.11.6. Conduct an annual AF corporate process activity (See Terms, "Corporate Process Activities") to address enterprise NDI issues and ensure AF and inter-service standardization. Include representation from MAJCOMs, the schoolhouse, AFMC/AFSPC Centers and PMs/PGMs.

4.3.11.7. Survey representative NDI laboratories/activities at the request of the MAJCOM functional manager or at least every 5 years. Pre-survey planning shall be coordinated with the MAJCOM Functional Manager, receiving the visit, who will interface with the MAJCOM Gatekeeper to establish the schedule, refer to AFI 90-201 for additional detail.

5. (Added-AFRC) Naming AFRC Aircraft:

5.1. (Added-AFRC) Naming of aircraft with "Spirit of..." or "City of..." markings is optional; request for applying aircraft names IAW TO 1-1-8.

5.1.1. (Added-AFRC) Names should have a regional, national, or military theme, or honor an AFRC base or aircraft manufacturing point.

5.1.2. (Added-AFRC) The request for aircraft naming approval must be routed with an AF Form 1768, *Staff Summary Sheet (SSS)*. (T-2). Wing-level Public Affairs are encouraged to review aircraft naming proposals. The required coordination for approval includes: WG/CC, NAF/CC, AFRC/A4M, AFRC/A4, AFRC/CV, AFRC/CC, AF/A4, and AF/CV. The staffed package must include strong justification, and an 8" x 10" color photo or digital image that clearly illustrates proposed naming. (T-2). Also, the staffed

package must clearly state the proposed naming dimensions, and designate the location of application on aircraft. (T-1).

6. (Added-AFRC) Marking of Aerospace Vehicles.

6.1. (Added-AFRC) The following paragraphs provide guidance for applying AFRC approved non-USAF standard aircraft markings. Apply paint schemes/configurations and USAF standard aircraft markings according to TO 1-1-8 applicable weapon system T.O. and this instruction.

6.1.1. (Added-AFRC) "AFRC" is the only authorized command designation to be applied to the vertical tails on all Air Force Reserve Command owned aircraft.

6.1.1.1. (Added-AFRC) Do not apply aircraft markings to aircraft unless specifically authorized by HQ AFRC/A4M, this instruction, TO 1-1-8, aircraft drawings, or the applicable aircraft technical orders.

6.1.2. (Added-AFRC) Responsibilities.

6.1.2.1. (Added-AFRC) HQ AFRC/A3T is the point of contact for all paint schemes and unit designators.

6.1.2.2. (Added-AFRC) HQ AFRC/A4M (afrc.a4m@us.af.mil) is the point of contact for aircraft painting and markings.

6.1.2.3. (Added-AFRC) Wing/Unit commanders are responsible for compliance with the provisions of this instruction.

6.1.3. (Added-AFRC) Appearance Standards.

6.1.3.1. (Added-AFRC) Maintain aircraft markings and basic paint schemes intact, legible, and distinct in color. Units should rely on touch-ups between repainting to maintain the aircraft coating system. Units should rotate commander and demonstration aircraft to prevent unnecessary paint buildup.

6.1.3.1.1. (Added-AFRC) Units are encouraged to use sign-making equipment with aircraft quality vinyl lettering. Vinyl lettering reduces the volume of coating materials required for application, volatile organic coating emissions created during coating application, and pressures to maintain a sound corrosion control and aircraft marking program.

6.1.3.2. (Added-AFRC) Unless placement locations of optional markings and insignias are specifically stated, the location of optional items are at the discretion of the wing commander. Placement locations cannot conflict with, or replace markings required by aircraft technical orders.

6.1.3.3. (Added-AFRC) All markings except U.S. flag, tail stripe, art, and Outstanding Unit Awards are painted in black, 37038, unless otherwise specified. Colored organizational insignias with a matte finish may be applied at the discretion of the wing commander unless otherwise stated in applicable aircraft technical orders.

6.1.3.4. (Added-AFRC) Deviations in marking or decal locations are authorized up to 6 inches from designated locations for B-52, C-5, C-17, C-130, and KC-135 systems and 2 inches for A-10 aircraft.

6.1.3.5. **(Added-AFRC)** C-40C aircraft are not authorized additional markings. Refer to Air Staff approved drawing number Technical Coordination Memo (TCM-CE&I-0035), VIP Quality Standard D796-20004-1, and Boeing drawing number 414A4215-2 (Digital Image available through the 932 AW by request).

6.1.4. **(Added-AFRC)** General Marking Guidelines.

6.1.4.1. **(Added-AFRC)** The application of the unit designator is mandatory for all CAF aircraft, unless otherwise directed. HQ AFRC/A3 is the office of primary responsibility for matters concerning unit designators.

6.1.4.2. **(Added-AFRC)** A tail stripe or flash is used to identify an aircraft flight/flying squadron. Each flight/flying squadron may have a unique tail stripe or flash.

6.1.4.3. **(Added-AFRC)** Crew Names.

6.1.4.3.1. **(Added-AFRC)** Crew names include pilot, aircrew and crew chief names. Units will apply crew names to all AFRC aircraft. **(T-2)**. A background block or border may be used. The entire block will have a subdued appearance. The block/border is painted black, or a contrasting color to the section of the aircraft where applied. **(T-3)**.

6.1.4.3.2. **(Added-AFRC)** All aircraft in the wing will be standard with the exception of the designated Wing Commander's aircraft, which may have different lettering but will not exceed 3 inches in height. **(T-2)**.

6.1.4.3.3. **(Added-AFRC)** Aircraft deployed to combat zones are not authorized to have any crew markings. All exterior crew markings shall be completely removed from the aircraft prior to deployment to combat zones. **(T-2)**.

6.1.4.3.4. **(Added-AFRC)** Unit's with high operations tempo and rotations for C-5, C17, C-130 and KC-135 combat-coded aircraft, the crew names may be applied to a suitable area on the interior of the aircraft. Interior markings will be IAW MDS specific technical order. Those airframes that do not rotate to combat zones will maintain markings IAW this supplement. **(T-2)**.

6.1.4.3.5. **(Added-AFRC)** Crew names contain military rank, first name, and last name (first name initial may be used in lieu of first name). Lettering styles are at Wing Commander's discretion.

6.1.4.4. **(Added-AFRC)** Wing Commanders' Aircraft Markings.

6.1.4.4.1. **(Added-AFRC)** Wing commanders are authorized aircraft marked with commander-unique markings. Commander's aircraft marking approval and aircraft selection is at the discretion of the wing commander. For geographically separated locations, wing commanders may designate squadron commander's aircraft.

6.1.4.4.2. **(Added-AFRC)** For TFI locations under association, the host wing commander may authorize specific aircraft to be identified as the associate wing commander's aircraft in support of ownership pride and esprit de corps.

6.1.4.4.3. **(Added-AFRC)** Markings authorized for use are:

- 6.1.4.4.3.1. **(Added-AFRC)** A collage of assigned flight/flying squadron insignias on the left forward fuselage.
- 6.1.4.4.3.2. **(Added-AFRC)** Highlighting of unit designator in contrasting color.
- 6.1.4.4.3.3. **(Added-AFRC)** When applied, markings are not to interfere with required aircraft markings.
- 6.1.4.5. **(Added-AFRC)** Aircraft Travel Pods.
 - 6.1.4.5.1. **(Added-AFRC)** Paint travel pods the same color as the assigned aircraft, with markings as authorized by the applicable technical orders. **(T-2)**. Units may use gloss paint on the travel pods for ease of maintenance.
 - 6.1.4.5.2. **(Added-AFRC)** Wing commander approves paint schemes, colors, insignias and markings designated for wing/squadron commander's travel pods. These pods may contain the position and name of the individual and appropriate insignia. Lettering style is at commander's discretion.
- 6.1.4.6. **(Added-AFRC)** Local Station Numbers "Nose Numbers".
 - 6.1.4.6.1. **(Added-AFRC)** Units will apply to the nose of the aircraft, radio call numbers in block or Helvetica letters not to exceed four digits unless specified in specific weapons system technical data. **(T-2)**.
- 6.1.4.7. **(Added-AFRC)** Paint aircraft gun ports the same color as camouflage area of aircraft. **(T-2)**.
- 6.1.4.8. **(Added-AFRC)** Aircraft Art.
 - 6.1.4.8.1. **(Added-AFRC)** For purposes of clarification, "aircraft art" is the term used to identify specialized artwork applied to any area of the aircraft, to include interior surfaces of doors and panels. Aircraft art may be applied when authorized by weapon specific marking instructions listed in paragraph 8. Removal prior to deployment is at the discretion of the wing commander.
 - 6.1.4.8.2. **(Added-AFRC)** All designs will be reviewed and approved by the Wing Commander and additional requirement outlined in Chapter 10 of this supplement. **(T-3)**.
 - 6.1.4.8.2.1. **(Added-AFRC)** Minimum art requirements are as follows:
 - 6.1.4.8.2.1.1. **(Added-AFRC)** Is representative of unit or civilian community.
 - 6.1.4.8.2.1.2. **(Added-AFRC)** Is distinctive, symbolic and designed in good taste.
 - 6.1.4.8.2.1.3. **(Added-AFRC)** Enhances unit pride.
 - 6.1.4.8.2.1.4. **(Added-AFRC)** Is gender neutral.
 - 6.1.4.8.2.1.5. **(Added-AFRC)** Is applied using subdued or matte finish.
 - 6.1.4.8.2.1.6. **(Added-AFRC)** Does not portray a specific weapon system or specific mission.

6.1.4.8.2.1.7. **(Added-AFRC)** Must not interfere with any mandatory markings.

6.1.4.8.2.1.8. **(Added-AFRC)** The unit is responsible for all copyright issues.

6.1.4.9. **(Added-AFRC)** Fighter aircraft awarded a verified aerial victory are authorized to display a 6-inch green star with a 1/2 inch black border located just below and centered on the pilot's name block. The type of aircraft shot down shall be inside the star in 1/2 inch white lettering. **(T-2)**. For aircraft with more than one aerial victory, a star is authorized for each aircraft shot down.

6.1.4.10. **(Added-AFRC)** Designated bomber aircraft with a successful weapons release in combat operations are authorized to display a conventional bomb and/or conventional air-launched cruise missile (CALCM) silhouette on that aircraft. These markings will be applied in contrasting shades that conform to the basic aircraft camouflage requirements. **(T-2)**.

6.1.4.11. **(Added-AFRC)** External fuel tanks shall be painted the same color and tone as existing aircraft coating. **(T-2)**. A marking is optional for tracking purposes; location and size is at wing commander's discretion as long as the marking does not displace any mandatory markings.

6.1.4.12. **(Added-AFRC)** Armament placards are not required. Armament and munitions should be documented IAW TO 11A-1-33, *Handling and Maintenance of Explosives-Loaded Aircraft* and on an informational note in the AFTO Form 781A, IAW AFRC Supplement 1 to TO 00-20-1.

7. (Added-AFRC) Competition Aircraft.

7.1. **(Added-AFRC)** Units participating in official competitions follow the guidelines established in the competition rules. Aircraft are "come as you are" and no waivers are granted.

8. (Added-AFRC) Aircraft Transfer:

8.1. **(Added-AFRC)** The following markings will be removed prior to formal transfer of aircraft to other units or MAJCOMS:

8.1.1. **(Added-AFRC)** Organizational insignias. **(T-2)**.

8.1.2. **(Added-AFRC)** Unit designator. **(T-2)**.

8.1.3. **(Added-AFRC)** Tail Stripe. **(T-2)**.

8.1.4. **(Added-AFRC)** Aircrew and crew chief names. **(T-2)**.

8.1.5. **(Added-AFRC)** Unit unique markings. **(T-2)**.

8.2. **(Added-AFRC)** Art may be retained if gaining unit agrees. **(T-2)**.

8.3. **(Added-AFRC)** Aircraft retiring to AMARC need not have any markings removed. **(T-2)**.

9. (Added-AFRC) Mid-Interval Over-coating Frequencies:

9.1. **(Added-AFRC)** Aircraft Structural Maintenance personnel are responsible for scoring aircraft paint systems and determining when to accomplish the scuff-sand and overcoat within the mid-life cycle. Use a locally developed scoring system (or in accordance with technical data, if applicable) to determine priority for repaint. Repaint schedules will be established with consideration for PDM cycles, but coating condition determined by Aircraft Structural Maintenance technicians will take precedence. **(T-3)**. The aircraft must be washed and clean prior to paint scoring. **(T-2)**.

10. **(Added-AFRC)** Weapon System Specific Markings:

10.1. **(Added-AFRC)** The following tables provide guidance for AFRC owned aircraft. These tables are in addition to the requirements outlined in TO 1-1-8 and specific aircraft technical orders. The markings locations sizes and colors are mandatory unless marked as “optional.” Aircraft technical orders take precedence over this guidance. All optional markings left to wing commander’s discretion will be identified in a local wing instruction to ensure uniformity. All deviations or waiver request will be routed through WG/CC, NAF and HQ AFRC/A4M (afrc.a4m@us.af.mil). **(T-2)**.

10.2. **(Added-AFRC)** AFRC A-10 Markings:

Table 1. (Added-AFRC) AFRC A-10 Markings.

Marking	Guidance and Location	Size	Color/Finish
“AFRC” Marking	Applied to the outboard side of both left and right engine nacelle doors. Center 9-inch letters on doors and run parallel with the nacelle.	9-inch	37038
Unit Identifier	Unit identifier is mandatory for A-10 aircraft. TO 1A-10C-23 provides location.	IAW: TO 1A-10C-23	IAW: TO 1A-10C-23
Tail Stripe or Flash “Optional”	Apply tail stripe or flash to the top of both vertical stabilizers caps only. Markings are applied on the outboard side of both vertical stabilizers.	Vertical Stabilizer caps only	Per Wing Commander
Crew Names	Pilot on left under windscreen beginning at FS 188.92. Crew chief just under pilot's name. Assistant crew chief name under crew chief name.	Maximum letter size 1 ¾-inch	37038
Local Station Numbers	Apply according to TO 1A-10C-23.	IAW: TO 1A-10C-23	IAW: TO 1A-10C-23
Aircraft Art	No Authorized		
Air Force Outstanding Unit Award “Optional”	Apply a marking that replicates the “Outstanding Unit Award” ribbon on one side of the aircraft fuselage in a suitable location selected by the wing commander.	Maximum 12 inches in length with a size ratio of 4:1. (TO 1-1-8, para 8.4.1)	Matte
Wing/Squadron	Apply an 18-inch squadron insignia to the	18-inches	Subdued or

Insignia “Optional”	forward fuselage on the left side above panel F-18, aft of panel F-44, apply an 18-inch Wing insignia on the right side above panel F-79, and aft of panel F-105. Units without a squadron insignia apply the wing Insignia		Matte finish
Naming aircraft “Optional”	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.	8-in	37038 or contrasting grey where applied

10.3. (Added-AFRC) AFRC B-52 Markings:

Table 2. (Added-AFRC) AFRC B-52 Markings.

Marking	Guidance and Location	Size	Color/Finish
Tail Stripe	Apply to both sides of vertical stabilizer.	15 inches in width	As Required
AFRC Command Insignia	Apply AFRC Command insignia on both sides of the vertical stabilizer, 6-inches below the “AFRC” marking. Center AFRC insignia on the vertical stabilizer.	24-inch	Subdued
“AFRC” Tail Marking	Apply to both sides of the vertical stabilizer, top of the letters are 41.5-inches below the tail stripe. Center “AFRC” insignia on the vertical stabilizer.	18-inches	37038
Aircraft Art “Optional”	Locate on left forward fuselage.	Maximum 36 x 36 inches	Wing Commanders Discretion
Crew Names	Pilot/aircrew: Centered under pilot’s window. Crew chief/assistant: Block is 15 inches by 36 inches. Block is located on BS 261.00 and WL 139.00.	Maximum letter size 1 ¾-inch letters inches	37038
Unit Identifier	Apply to both sides of vertical stabilizer. Left side: Top of identifier is 36-inches below box antenna. Trailing edge of the second letter is on a vertical line down from the tip of the command insignia. Right side: Top of identifier is 36 inches	42 inches	As Required

	below box antenna. The training edge of the first letter is in a vertical line from the tip of the command insignia.		
Naming aircraft “Optional”	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.	8-in	37038 or contrasting grey where applied

10.4. (Added-AFRC) AFRC C-5 Markings:

Table 3. (Added-AFRC) AFRC C-5 Markings.

Marking	Guidance and Location	Size	Color/Finish
United States Flag	Both sides of vertical stabilizer, bottom of flag on WL 626, top of flag horizontally centered between the 10 percent chord front beam and the 64 percent rear chord beam.	Matte: 24 x 48 inches Gloss: 31.5 x 60 inches	Matte finish
“AFRC” Tail Marking	Both sides of vertical stabilizer, top of letters 12 inches below bottom of flag. Top of letters will be horizontally centered between the 10 percent chord front beam and the 64 percent rear chord beam. Bottom of “A” in AFRC is located 4 feet 9 inches aft of leading edge wrap around panel aft seam.	18 inches	37038
Tail Band Stripes “Optional”	2-inch upper stripe located 12 inches below bottom of “AFRC.” 2-inch lower stripe located 18 inches down from bottom of upper stripe. Stripe will run horizontally from aft edge of the leading edge seam, back to trailing edge of the rudder.	As required	37038
Tail Band Marking “Optional”	Units have the option of painting or using decals within the borders of the upper and lower tail band stripes. A reasonable number of subdued colors may be used. Lettering or designs within the tail band stripes are only authorized within the color portion.		As required
Radio Call Numbers	Both sides of vertical stabilizer, top of numbers located 12 inches below bottom of lower stripe. Top of numbers will be horizontally centered between the 10 percent chord front beam and the 64 percent rear chord beam. Leading edge of first number is located 4 feet 9 inches aft of leading edge wrap around panel aft seam.	18 inches	37038

Unit Designator	Both sides of the fuselage, centered under local station numbers. Top of numbers and letters located 10 inches below bottom of local station numbers.	10 inches	37038
Associate Unit Designator	Both sides of the fuselage, centered under unit marking. Top of letters and numbers located 6 inches below bottom of unit marking.	10 inches	37038
AFRC Command Insignia	Both sides of the fuselage, 12-inches aft and centered vertically on the crew entry door and number-6 service door.	34 inches	As required
Associate Command Insignia	Both sides of fuselage. Located aft of AFRC emblem with 4 inches between the aft-most edge of AFRC emblem and leading edge of the associate command emblem. Top of Associate Command emblem even with top of AFRC emblem.	34 inches	As required
Air Force Outstanding Unit Award	Centered on door, bottom of decal 3 inches above the crew entry door.	Maximum 12 inches in length with a size ratio of 4:1.	As required
Crew Names	Pilot, Copilot, Aircrew and Assistant Crew Chief is optional. Crew Chief Left side of fuselage, with the top forward corner of the letters 6-inches down and aft of the lower aft corner of the crew entry door. (For high operations tempo aircraft crew names will be on the interior of the aircraft in a suitable location)	Maximum 1 ¾-inch letters	37038
Local Station Numbers (last 4 digits of aircraft serial number)	Both sides of fuselage, top of numbers grounded on stringer 12 on left side and stringer 11 on right side of fuselage, forward edge of number 9 inches aft of nose plug seam.	10 inches	37038
National Star Insignia Outline	Both sides of fuselage, centered 59 inches aft of FS 1964 on WL 258.	50 inches	37038
Aircraft Art "Optional"	Locate on left forward fuselage	Maximum 48 x 48 inches	Wing Commander's discretion
"Air Force Reserve Command" Marking "Optional"	Centered on bottom of visor, 17 inches forward of visor trailing edge	10 inches	37038
Naming aircraft	Once approved, these markings will be	8-in	37038 or

“Optional”	located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.		contrasting grey where applied
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10.5. (Added-AFRC) AFRC C-17 Markings:

Table 4. (Added-AFRC) AFRC C-17 Markings.

Marking	Guidance and Location	Size	Color/Finish
United States Flag	Bottom of flag is located 42 inches above top edge of the upper tail band stripe, with the top forward corner of the flag located 1 inch from the VOR/LOC-2 antenna, same location both sides of vertical stabilizer.	24 x 48 inches	Matte finish
“AFRC” Tail Marking	Bottom of letters are located 12 inches above top edge of the top tail band stripe and centered on an (invisible) vertical line drawn parallel with vertical stabilizer trailing edge that intersects the center of the flag, same location both sides.	18 inches	37038
Tail Band Stripes “Optional”	2-inch stripes, top of upper stripe located at vertical stabilizer coordinate ZV134. Top of lower stripe is located 18 inches below bottom of upper stripe. Stripes run horizontally from aft edge of leading edge seam to trailing edge of rudder both sides.	As required	37038
Tail Band Marking “Optional”	Units have the option of painting wing markings within the borders of the upper and lower tail band stripes. Tail band/Fin flash may include logos in addition to colors.		As Required
Radio Call Numbers	Both sides of vertical stabilizer, top of numbers located 12 inches below bottom of lower tail band stripe, centered on an invisible vertical line drawn parallel with the vertical stabilizer trailing edge, intersecting center of the flag.	18 inches	37038
Unit Designator	Both sides of fuselage, centered on the local station numbers, top of numbers 6 inches below bottom of the local station number.	10 inches	37038
Associate Unit Designator	Both sides of the fuselage, centered under unit marking. Top of letters and numbers located 6 inches below bottom of unit marking.	10 inches	37038
AFRC	Apply to both sides of the fuselage. AFRC	34 inches	As required

Command Insignia	Command insignia marking will be applied IAW applicable C-17 Technical Orders.		
Associate Command Insignia	17.5 inches Aft of AFRC Insignia	34 inches	As required
Wing Insignia "Optional"	For non associate units insignia will be 17.50 inches aft of AFRC Command Insignia. For associate units insignia will be 17.50 inches aft of Associate Command Insignia.	34 inches	As required
Air Force Outstanding Unit Award	Decal centered 3 inches above crew entry door.	Maximum 12 inches in length with a size ratio of 4:1.	As required
Crew Names	Pilot, Copilot, Aircrew and Assistant Crew Chief is optional. Crew Chief Crew Block Exterior: Left side of fuselage only, with the top forward corner of the letters 6 inches down and aft of the lower aft corner of the crew entry door. (For high Operations tempo aircraft crew names will be on the interior of the aircraft in a suitable location)	Maximum letter size 1 ¾-inch letters inches	37038
Local Station Numbers (last 4 digits of aircraft serial number)	Local Station Numbers marking will be IAW applicable C-17 Technical Orders.	18 inches	37038
National Star Insignia Outline	Both sides of fuselage, centered on the centerline of the aft fuselage formation light, with the insignia leading edge located 6 inches aft of the light.	30 inches	37038
Aircraft Art "Optional"	Locate on left forward fuselage	Maximum 48 x 48 inches	Wing Commander's discretion
U.S. Air Force Marking	Both sides of fuselage, located 12 inches aft of fuselage station 27.200 and 35.38 inches above longeron 1-25.	24 inches	37038
Naming aircraft "Optional"	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.	8-in	37038 or contrasting grey where applied

10.6. (Added-AFRC) AFRC C-130 Markings (CAF):

Table 5. (Added-AFRC) AFRC C-130 Markings (CAF).

Marking	Guidance and Location	Size	Color/Finish
United States Flag	Located on both sides of the vertical stabilizer. The trailing edge of the flag is located 10-inches forward of the leading edge of the rudder. Top edge of the flag is at station 178.0.	24 x 48 inches	Matte finish
“AFRC” Tail Marking	Apply the marking “AFRC” to both sides of the vertical stabilizer. Center under the flag left to right. The top of the marking is at station 142.0.	12 inches	Contrasting Gray FS36293 and 36118
RESCUE Marking	Apply the marking “RESCUE” to both sides of the vertical stabilizer on AFRC HC-130 aircraft. Center under the “AFRC” marking, with the top of the marking at wing station 120.0.	10 inches	Contrasting Gray FS36293 and 36118
Unit Designator	The bottom of the unit identifier is 63-inches up from the top surface of the horizontal stabilizer. Identifier ends or begins at the rear beam.	36 inches in height	Contrasting Gray FS36293 and 36118
Radio Call Numbers	The base of the tail numbers is 36-inches above the top surface of the stabilizer. The “AF” and “year” are 6-inches high with 3-inches between the top of the “year” and the bottom of the “AF”. Tail number starts and at the rear beam.	The last four digits of the tail number are 15-inches in height.	Contrasting Gray FS36293 and 36118
Organizational Insignia “Optional”	Insignia may be applied to both sides of the fuselage. The operational squadron insignia may be applied on the left side of the fuselage in place of wing insignia. Units without an organization insignia may apply the next higher organizational insignia.	Maximum 24 inches	Contrasting Gray FS36293 and 36118
Aircraft Art “Optional”	Not Authorized	Maximum 36 x 36 inches	Wing Commanders Discretion
Crew Names	Pilot, Copilot, Aircrew and Assistant Crew Chief is optional. Crew Chief Located at scanner window, between FS 257.0. through FS 287.0 and WL 175.0 through WL 200.0. Assistant crew chief names are optional and are applied under the crew chief names.	Maximum letter size 1 ¾-inch letters inches	Contrasting Gray FS36293 and 36118

Local Station Numbers (last 4 digits of aircraft serial number)	Place the last four digits of the tail number on each side of the aircraft in block or Helvetica style numbers, centered horizontally on FS 134.0 with support edge of marking on WL 192.0.	6-inch numbers	Contrasting Gray FS36293 and 36118
Unit Marking	Centered on FS 134, both sides of fuselage, 6-inches below the identification number. Example of unit identifier: 934 AW.	6-inch numbers	Contrasting Gray FS36293 and 36118
Associate Unit Marking	Apply to both sides of fuselage, centered under unit identifier. Top of letters and numbers are located 1 inch below bottom of unit identifier.	6-inch numbers	Contrasting Gray FS36293 and 36118
Engine Exhaust Trail	Engine exhaust trail may be painted black.		Contrasting Gray FS36293 and 36118
Naming aircraft "Optional"	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.	8-in	37038 or contrasting grey where applied

10.7. (Added-AFRC) AFRC C-130 Markings (MAF):

Table 6. (Added-AFRC) AFRC C-130 Markings (MAF).

Marking	Guidance and Location	Size	Color/Finish
United States Flag	Located on both sides of the vertical stabilizer with bottom of flag located 154 inches above horizontal stabilizer with bottom of flag centered horizontally on vertical stabilizer.	24 x 48 inches	Matte finish
"AFRC" Tail Marking	Apply marking to both sides of the vertical stabilizer. Center under the flag left to right. The top of marking is a station 142.0.	12 inch letters	37038
Tail Band Stripes "Optional"	2-inch upper stripe located 10-inches below the bottom of the "AFRC" marking. 2-inch lower stripe located 12-inches below the bottom of the upper stripe. Stripe runs horizontally from aft edge of leading edge seam to trailing edge of rudder. (Do not extend marking onto rudder trim tabs).	2-inch stripes	37038
Tail Band	Units have the option of painting and, or	N/A	As required

Marking “Optional”	using decals within the borders of the upper and lower tail band stripes. A reasonable amount of subdued may be used. Lettering or designs within the tail band stripes are only authorized within the color portion.		
Radio Call Numbers	Consist of five numerals derived from the aircraft serial number. Both sides of vertical stabilizer, top of numbers located 10 inches below bottom of lower tail band stripe, vertical stab station 51.0. centered under flag.	12 inch numbers	37038
Local Station Numbers (last 4 digits of aircraft serial number)	Place the last four digits of the tail number on each side of the aircraft in block or Helvetica style numbers, centered horizontally on FS 134.0 with support edge of marking on WL 192.0.	6-inch numbers	37038
Unit Designator	Begin designator horizontally at FS 103.6 and centered horizontally on WL 173.0. Example of designator: 302 AW.	6-inch numbers	37038
Associate Unit Designator	Apply to both sides of fuselage, centered under unit marking. Top of letters and numbers are located 1 inch below bottom of unit marking. Example: 403 WG	6-inch numbers	37038
Crew Names	Crew Chief Pilot, Copilot, Aircrew and Assistant Crew Chief is optional. Crew Chief Centered horizontally 2-inches above the crew door.	Maximum letter size 1 ¾-inch letters inches	37038
Air Force Outstanding Unit Award “Optional”	Centered 3-inches above crew entry door	Maximum 12 inches in length with a size ratio of 4:1.	As Required
“U.S. AIR FORCE”	Apply IAW Paint Drawings	10 inch letters	37038
Aircraft Art “Optional”	Locate on left forward fuselage	Maximum 36 x 36 inches	Wing Commanders Discretion
Engine Exhaust Trail	Engine exhaust trail may be painted black.	N/A	37038
AFRC Command Insignia	Apply on both sides of the fuselage centered on FS 257.0 with the bottom edge of the insignia resting on WL 196.0.	24-inch	As required
Associate Command Insignia	Apply on both sides of the fuselage aft of the “AFRC” command insignia centered on FS 286.0, with the bottom edge of the insignia resting on WL 196.0. The top of the “AMC”	24-inch	As required

	<p>insignia is even with the top of the “AFRC” insignia.</p> <p><u>Night Vision Equipped Aircraft:</u> Apply the 24-inch Associate command insignia aft of the “AFRC” command insignia centered on FS 345.0 with the bottom edge of the insignia resting on WL 196.0. The top of the “associate” insignia is even with the top of the “AFRC” insignia on both sides of the fuselage.</p>		
Naming aircraft “Optional”	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.	8-in	37038 or contrasting grey where applied

10.8. (Added-AFRC) MC/C-130. (SOF): GUIDANCE TABLE DELETED

10.9. (Added-AFRC) AFRC WC/C-130J Markings.

Table 7. (Added-AFRC) AFRC WC/C-130J Markings.

Marking	Guidance and Location	Size	Color/Finish
United States Flags	Located on both sides of the vertical stabilizer with bottom of flag located 154 inches above horizontal stabilizer with bottom of flag centered horizontally on vertical stabilizer.	24 x 48 inches	Matte Finish
“AFRC” Tail Marking	Apply marking to both sides of the vertical stabilizer. Center under the U.S. flag left to right. The top of marking is located at vertical station 142.0.	15-inch letters.	37038
Tail Band Stripes for the WC-130J APC Tactical Gray	2-inch upper stripe located 10-inches below the bottom of the “AFRC” marking. 2-inch lower stripe located 12-inches below the bottom of the upper stripe. Stripe runs horizontally from aft edge of leading edge seam to trailing edge of rudder. (Do not extend marking onto rudder trim tabs).		37038 (No gloss, flat black only)
Tail Band Markings “Optional”	Units have the option of painting and, or using decals within the borders of the upper and lower tail band stripes. A reasonable amount of subdued may be used. Lettering or designs within the tail band stripes are	N/A	As required

	only authorized within the color portion.		
Radio Call Numbers	Consist of five numerals derived from the aircraft serial number. Apply to both sides of vertical stabilizer, top of numbers located 10 inches below bottom of lower tail band stripe, vertical stab station 51.0. Centered under flag.	15 inch numbers	37038
AFRC Command Insignia	Apply on both sides of the fuselage centered on FS 257.0 with the bottom edge of the insignia resting on WL 196.0.	24-inch	As required
Associate Command Insignia (C-130J Only)	Apply 24-inch insignia on both sides of the fuselage, aft of the "AFRC" command insignia, centered on FS 345.0 with the bottom edge of the insignia resting on WL 196.0. The Top of the "associate" insignia is even with the top of the "AFRC" insignia on both sides of the fuselage.	24-inch	As required
Unit Designator	Begin designator horizontally at FS 107.5 and centered horizontally on WL 169.5. Example of designator: 403 WG.	6 inch characters	37038
Associate Unit Designator (C-130J only)	Apply to both sides of fuselage, centered under unit marking. Top of letters and numbers are located 1 inch below bottom of unit marking. Example: 403 WG	6-inch numbers	37038
Local Station Numbers (last 4 digits of aircraft serial number)	Place the last four digits of the tail number on right and left forward fuselage in black six inch block or Helvetica style numbers, Starts horizontally at FS 137.75 and bottom rest horizontally on WL 200.0	6-inch characters	37038
Crew Names	Pilot, Copilot, Aircrew and Assistant Crew Chief is optional. Crew Chief Located 2-inches above the crew entry door hinge.	Maximum letter size 1 ¾-inch letters inches	37038
Radomes	"DO NOT PAINT RADOMES"		
Aircraft Art "Optional"	Nose Art is authorized but optional Located on left side of fuselage.	Maximum 36 x 36 inches	Wing Commanders Discretion
Air Force Outstanding Unit Award	Centered 3-inches above crew entry door.	Maximum 12 inches in length with a size ratio of 4:1	As required
Naming aircraft "Optional"	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the	8-in	37038 or contrasting grey where

	pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.		applied
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10.10. (Added-AFRC) AFRC KC-135 Markings.

Table 8. (Added-AFRC) AFRC KC-135 Markings.

Marking	Guidance and Location	Size	Color/Finish
United States Flag	Both sides of vertical stabilizer, bottom of flag on WL 447, and top corner of flag grounded on leading edge seam.	21 x 40 inches	Matte finish
"AFRC" Tail Marking	Apply to both sides of the vertical stabilizer, centered 12 inches below the bottom of the U.S. Flag.	12 inches	37038
Tail Band Stripes "Optional"	2-inch upper stripe will be applied IAW applicable KC-135 Technical Order.		37038
Tail Band Marking "Optional"	Units have the option of painting wing markings within the borders of the upper and lower tail band stripes. Tail band/Fin flash may include logos in addition to colors. All unit MDS like aircraft will have the same paint scheme.		As required
Radio Call Numbers	Apply to both sides of the vertical stabilizer and center top of numbers IAW applicable KC-135 Technical Order.	12 inches	37038
Unit Designator	Apply to both sides of fuselage, centered and 6 inches under local station numbers	6-inches.	37038
Associate Unit Designator	Apply to both sides of fuselage, centered and 6 inches under unit marking numbers.	6-inches.	37038
AFRC Command Insignia	Apply the "AFRC" command insignia on both sides of the fuselage; (Left side) 16-inches aft of crew entry door, 6-inches below the "U.S. Air Force" markings (Right side) at the corresponding FS/WL as the left fuselage insignia.	34 inch	37038
Associate Command Insignia	Associate command insignia is located 14 3/8 inches aft of the AFRC command insignia. Top edges are aligned.	34 inch	37038
Air Force Outstanding Unit Award	Centered 3 inches above crew entry door.	Maximum 12 inches in length with a size ratio of 4:1.	As Required

Crew Names	Pilot, Copilot, Aircrew and Assistant Crew Chief is optional. Crew Chief Side of fuselage, 6 inches below and centered on command insignia. (For high operations tempo aircraft crew names will be on the interior of the aircraft in a suitable location)	Maximum 1 ¾-inch letters	Wing CC discretion
Local Station Numbers (last 4 digits of aircraft serial number)	Both sides of fuselage, located according to TO 1C-135-8.	6-inches	37038
Aircraft Art “Optional”	Location left forward fuselage,	Maximum 48 x 38 Inches	Wing CC discretion
Boom Ruddevators	UE without Associate: Center numeric unit designator, (434 and 459), on the upper left hand surface looking down from the boom pod and the lower left hand surface looking up and forward from the ground. Center alpha unit designator, (ARW), on the upper right hand surface looking down from the boom pod and the lower right hand surface looking up and forward from the ground. UE with Associate: Center numeric UE designator, (452 AMW, 507 ARW and 916 ARW), on the upper left hand surface looking down from the boom pod and the lower left hand surface looking up and forward from the ground. Center associate unit designator, (137 ARW, 911 ARS and 912 ARS), on the upper right hand surface looking down from the boom pod and the lower right hand surface looking up and forward from the ground. Notes: Designators will be applied with the top of the lettering and numbers facing the trailing edge of the ruddevator. Color selection is at the discretion of the wing commander.		
Naming aircraft “Optional”	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise	8-in	37038 or contrasting grey where applied

	positioning of letters is determined locally but must be standardized within the unit.		
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10.11. (Added-AFRC) AFRC F-16 Markings.

Table 9. (Added-AFRC) AFRC F-16 Markings.

Marking	Guidance and Location	Size	Color/Finish
Paint Scheme	All F-16 aircraft assigned to AFRC are a two-tone camouflage paint scheme using colors 36118, dark gray, and 36270 medium gray.		
Tail Stripe	Width of the stripe does not exceed 9 inches. Wing commander determines design and color.		
Unit Identifier	Both sides of vertical stabilizer, Located vertically with bottom of numbers at WL 158.0 and horizontally with leading edge of first letter on FS 482.07.	18 inch letters	
Unit Insignia	The application of a unit insignia (Steer Head, Shark, etc.) is authorized on both sides of the vertical stabilizer. The unit insignia is centered between the top of the unit designator marking and the bottom of the tail stripe. Apply the unit insignia in place of the command insignia.		Contrasting gray where applied
Unit Logo	Apply the unit logo on both sides of the lower portion of the vertical stabilizer. The Wing commander approves lettering design.	Wing CC discretion	Contrasting gray where applied
"AFRC" Marking	Located on the centered area between the trailing edge flaperon and leading edge of the horizontal stabilizers on both sides of the aircraft.	6 inch Letters	Contrasting gray where applied
Crew Names	Apply the pilot name on the left canopy rail, crew chief name on the right canopy rail, and assistant crew chief inside of the nose gear door. Nicknames or call signs in good taste are authorized.	Maximum 1 3/4-inch letters	Wing CC discretion
AFRC Command Insignia "Optional"	Apply the AFRC insignia on the right side of the forward fuselage. The location vertically, is top of insignia 11-inches below fuselage/intake splitter vane and horizontally with the leading edge 52 inches aft of intake duct lip.	10-inches.	As Required
Wing Insignia	Apply the wing insignia to the left side of	10-inches	As Required

“Optional”	the forward fuselage. The location vertically is, top of insignia 11 inches below fuselage/intake splitter vane and horizontally with the leading edge 52 inches aft of intake duct lip.		
Air Force Outstanding Unit Award “Optional”	The award is applied to the inside of the nose landing gear door (full color) and 4 inches by 12 inches maximum size.	Maximum 12 inches in length with a size ratio of 4:1.	As Required
Nose Numbers	Not applicable.		
Aircraft Art	Not Authorized		
Naming aircraft “Optional”	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.	8-in	37038 or contrasting grey where applied

10.12. (Added-AFRC) AFRC H-60 Markings.

Table 10. (Added-AFRC) AFRC H-60 Markings.

Marking	Guidance and Location	Size	Color/Finish
“AFRC” Marking	Located on both sides of the boom, with the marking placed at FS 536 and WL 230.	6 inch	37038 or Contrasting gray where applied
Unit Identifier	Left side: Positioned 21.5 inches below WL 319.633, centered. Right side: Positioned 19 inches below WL 319.633, centered.	9 inches	37038 or Contrasting gray where applied
Crew Names	Pilot optional: Right door, 2.5 inches below window, centered. Copilot optional: Left door, 2.5 inches below window, centered. Crew chief/assistant: Crew chief, right cargo door, 3.1 inches below and centered on forward window. Assistant: Left cargo door, 3.1 inches below and centered on forward window	Maximum 1 ¾-inch letters	37038 or Contrasting gray where applied
Radio Call Numbers	Apply to both sides of the vertical stabilizer; Left side: forward edge of numbers on FS	6 inches	37038 or Contrasting gray where

	696, Right side: forward edge of numbers on FS 718 and bottom edge on WL 267. Size of numbers is 6 inches.		applied
AFRC Command Insignia "Optional"	Left side: 11 inches below WL 319.633 centered. Right side: 7 inches below WL 319.633 centered	10 inches	Subdued
Wing Insignia "Optional"	On right cargo door 8 inches below forward Window, centered.	10 inches	Subdued
Unit Insignia "Optional"	On left cargo door, 8 inches below forward window, centered	10 inches	Subdued
Aircraft Art	Not Authorized		
"USAF" Marking	Apply on both sides of the tail pylon. Left side forward edge of letters on FS 703 along WL 285. Right side forward edge of numbers on FS 703 along WL 285.	6 Inches	37038 or Contrasting gray where applied
Naming aircraft "Optional"	Once approved, these markings will be located on left side of fuselage, forward of wing and no higher than the top edge of the pilots wind screen. The style and precise positioning of letters is determined locally but must be standardized within the unit.	8-in	37038 or contrasting grey where applied

LOREN M. RENO
Lieutenant General, USAF
DCS/Logistics, Installations & Mission Support

(AFRC)

JAMES F. JACKSON, Lt Gen, USAFR
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

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Perscribed Forms

None

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Abbreviations and Acronyms

ABDR—Aircraft Battle Damage Repair

AC—Advanced Composites

AF—Air Force

AFCFM—Air Force Career Field Manager

AFCPAB—Air Force Corrosion Prevention Advisory Board

AETC—Air Education and Training Command

AFI—Air Force Instruction

AFMC—Air Force Materiel Command

AFOSH—Air Force Occupational Safety and Health

AFPD—Air Force Policy Directive

AFSC—Air Force Specialty Code

AFSPC—Air Force Space Command

AFTO—Air Force Technical Order

ANG—Air National Guard

ARC—Air Reserve Component

ASIP—Aircraft Structural Integrity Program

(Added-AFRC) *Adopted Forms*

(Added-AFRC) AFRC – Air Force Reserve Command

(Added-AFRC) AFSOC – Air Force Special Operations Command

(Added-AFRC) AFTO – Air Force Technical Order

(Added-AFRC) AMC – Air Mobility Command

CCPE—Corrosion Control and Prevention Executive

CDC—Career Development Course

CPC—Corrosion Prevention and Control

CTI—Coatings Technology Integration

(Added-AFRC) CAF – Combat Air Forces

(Added-AFRC) CALCUM – Conventional Air-Launched Cruise Missile

(Added-AFRC) CC – Commander or Combat-Coded

DOD—Department of Defense

ESOH—Environment, Safety and Occupational Health

(Added-AFRC) HAF – Headquarters, US Air Force

IAW—In Accordance With

JSSG—Joint Service Specification Guide

LO—Low Observable
LOIP—Low Observable Integrity Program
LOS—Low Observable Supportability
MAJCOM—Major Command
MT—Metals Technology
(Added-AFRC) MAF – Mobility Air Forces
(Added-AFRC) MDS – Mission Design Series
NAS—National Aerospace Standard
NDI—Nondestructive Inspection
(Added-AFRC) NAF – Numbered Air Force
OPR—Office of Primary Responsibility
(Added-AFRC) OPM – Office of Personnel Management
PGM—Product Group Manager
PM—Program Manager
PoD—Probability of Detection
(Added-AFRC) PDM – Programmed Depot Maintenance
RDS—Records Disposition Schedule
SAF—Secretary Air Force
SME—Subject Matter Expert
(Added-AFRC) SE – Support Equipment
TCTO—Time Compliance Technical Order
TO—Technical Order
(Added-AFRC) TFI – Total Force Initiative
U&TW—Utilization and Training Workshop
(Added-AFRC) UE – Unit Equipped
USAF—United States Air Force
(Added-AFRC) WG – Wing / Wage Grade
(Added-AFRC) WG/CC – Wing Commander
(Added-AFRC) WG/CV – Vice Wing Commander
(Added-AFRC) WL – Water level

Terms

Air and Space Equipment—Equipment used and maintained to meet the Air Force mission. It includes aircraft, missiles, space equipment, communications-electronic equipment, avionics, engines, training equipment, support equipment, aircraft and space ground equipment, sound suppressor systems, test, measurement and diagnostic equipment and major end items of all equipment.

(Added-AFRC) Combat Air Forces (CAF)— Term to collectively describe all AFRC fighter or bomber units.

Corporate Process Activities—Reference AFPD, 28 October 2011, *Conferences* and SECAF Memorandum, *Extension of Air Force Policy – Conferences*, 9 May 2012: “In recognition of the fact that a number of gatherings necessary to carry out official business might otherwise fall under the broad JTR/JFTR definition, ‘conference’ has been interpreted not to include assemblies or gatherings convened to address business matters internal to the Air Force (or other topics with little relevance outside the Air Force) and those primarily involving day-to-day Government operations....Examples of the type of internal deliberative-type decisions-making events not considered to be ‘conference’ are Air Force Corporate Process activities....”

Corrosion—Deterioration of material that is due to electromechanical or chemical attack, resulting from exposure to natural or induced environmental conditions or from the destructive attack of fungi or bacteria.

Functional Managers—AFCFMs responsible for ensuring certification (education, training and experience) standards meet the needs of the AF workforce.

Level 3 NDI—Individual with the skills and knowledge to interpret standards, select the method and technique for a specific inspection, and prepare and verify the adequacy of procedures.

(Added-AFRC) Mobility Air Forces (MAF)— Term to collectively describe all AFRC airlift or tanker units that are not assigned or directly associated with AFSOC.

Technical Order—AF publication that gives specific technical directives and information on inspection, storage, operation, modification and maintenance of given AF items and equipment.

Utilization and Training Workshop—Forum and quality control tool to determine and manage career field education and training requirements as they apply to mission needs.

Attachment 2**AFMC MANAGED TOS**

- TO 00-25-224, *Welding High Pressure and Cryogenic Systems*
- TO 00-25-252, *Aeronautical Equipment Welding*
- TO 00-25-262, *Corrosion Programs for Life Cycle Management* (in development)
- TO 00-80C-1, *Crash Damaged, Disabled Aircraft Recovery* (in development)
- TO 1-1-8, *Application and Removal of Organic Coatings, Air and Space and Non-Air and Space Equipment*
- TO 1-1A-9, *Aerospace Metals General Data and Usage Factors*
- TO 1-1-686, *Desert Storage Preservation and Process Manual for Aircraft, Aircraft Engines, and Aircraft Auxiliary Power Unit Engines*
- TO 1-1-689, *Avionics Cleaning and Corrosion Prevention/Control*
- TO 1-1-690, *General Advanced Composite Repair Processes Manual*
- TO 1-1-691, *Aircraft Weapon Systems Cleaning and Corrosion Control*
- TO 1-1-694, *Application and Removal of Low Observable Coatings on Aerospace Equipment*
- TO 1-1-695, *Corrosion Prevention and Control for Remotely Piloted Aircraft (RPA)* (in development)
- TO 1-1-700, *Corrosion Prevention and Control for Ground Communications Equipment*
- TO 32-1-101, *Use and Care of Hand Tools and Measuring Tools*
- TO 33B-1-1, *NDI Methods, Basic Theory*
- TO 33B-1-2, *Nondestructive Inspection General Procedures and Process Controls*
- TO 34-1-3, *Technical Manual Inspection and Maintenance of Machinery and Shop Equipment*
- TO 34W4-1-5, *Operator Manual Welding Theory and Application*
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