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This publication implements the integrity program requirements related to structural integrity in Air Force Policy Directive (AFPD) 63-1/20-1, *Integrated Life Cycle Management*, and is consistent with DoD Directive 5000.01, *The Defense Acquisition System*, and DoD Instruction 5000.02T, *Operation of the Defense Acquisition System.* It also provides structural management direction associated with AFPD 21-1, *Maintenance of Military Materiel*, and designates offices and procedures that provide Air Force technical and engineering support for air and space assets utilizing technologies in the structural disciplines. This Department of the Air Force Instruction (AFI) specifically addresses the structural disciplines of advanced composites, corrosion prevention and control, low observables supportability, metals technology, and nondestructive inspection (commonly abbreviated as "NDI") for non-facilities assets. This publication applies to all military and civilian employees of the Regular Air Force, Air Force Reserve, and Air National Guard, and to other individuals or organizations as required by binding agreement or obligation with the Department of the Air Force. Any contractor requirements contained within this instruction must be contained within the contract, grant, or agreement to be enforceable. Ensure all records created as a result of processes prescribed in this publication are maintained in accordance with AFI 33-322, *Communication and Information Records Management and Information Governance Program*, and disposed of in accordance with the Air Force Records Disposition Schedule located in the Air Force Records Information Management System. 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 Forms 847 from the field through the appropriate functional chain of command. This publication may be supplemented at any level, but to ensure standardization, any organization supplementing this instruction must send the implementing publication to the Engineering & Force Management Division, office of the Deputy Assistant Secretary for Science, Technology and Engineering (SAF/AQRE) for review and coordination before publishing. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0," "T-1," "T-2," "T-3") number following the compliance statement. See AFI 33-360, *Publications and Forms Management*, for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the requestor's commander for non-tiered compliance items. Tiering is further addressed in **paragraph 1.4**.

(AFRC) This supplement extends guidance of DAFI 63-140, *Aircraft Structural Integrity Program* (ASIP) and Air and Space Equipment Structural Management. This supplement applies to military and civilian Air Force Reserve Command (AFRC) personnel and RegAF and Guard associate units when AFRC is the lead. Refer recommended changes and questions about this supplement through the applicable Number Air Force (NAF) to HQ AFRC/A4MM (**afrc.a4mm-02@us.af.mil**) using the AF Form 847, *Recommendation for Change of Publication*. Waiver coordination and authority is outlined in **paragraph 1.4** or identified with a Tier level ("T-2 and T-3") number following the compliance statement. Refer to AFI 33-360, *Publication and Forms Management* for a description Tier levels definition and authority. Refer to specific Weapon System or Program Office for ASIP waiver request per **paragraph 1.4.** HQ AFRC/A4 is the authority for T-2 waivers not covered by **paragraph 1.4.** Ensure that all records created as a result of processes prescribed in this publication are maintained IAW AFI 33-322, *Records Management and Information Governance Program*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This publication may be

supplemented at any level but all Supplements must be routed to Engineering & Force Management Division, office of the Deputy Assistant Secretary for Science, Technology and Engineering (SAF/AQRE) for review and coordination before publishing.

(433AW) This publication is implemented by Air Force Policy Directive 21-1, *Air and Space Maintenance* and aligns with Department of the Air Force Instruction (DAFI) 63-140_Air Force Reserve Command Supplement (AFRCSUP), *Aircraft Structural Integrity Program and Air and Space Equipment Structural Management.* It applies to all 433 Airlift Wing (AW) personnel who initiate the process in this instruction and personnel who implement the process through the 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 Instruction (AFI) 33-322, *Records Management and Information Governance Program,* and disposed of IAW Air Force Records Information Management System Records Disposition Schedule. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, *Recommendation for Change of Publication;* route AF Forms 847 from the field through the appropriate functional chain of command. This publication may not be supplemented or further implemented/extended. The authorities to waive wing/unit level requirements in this publication are identified with a Tier ("T-0, T-1, T-2, T-3") number following the compliance statement. See Department of the Air Force Manual (DAFMAN) 90-161, *Publishing Processes and Procedures,* for a description of the authorities associated with the Tier numbers. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items.

SUMMARY OF CHANGES

This document has been substantially revised. Major changes include the integration and streamlining of content from AFI 20-114. The integration removes Air Force Materiel Command (AFMC) detailed procedures previously in AFI 20-114. Removed procedures may be addressed in a supplement or another lower-level Air Force publication.

(AFRC) ASIP, structural management, corrosion control, and aircraft art are consolidated into the DAFI 63-140_AFRCSUP.

1. Overview.

1.1. Publication Organization.

1.1.1. This instruction integrates directive guidance for the Air Force Aircraft Structural Integrity Program (commonly abbreviated as "ASIP") with directive guidance for the complementary air and space equipment structural management disciplines.

1.1.2. **Paragraph 2** and its subparagraphs contain combined roles and responsibilities. Where appropriate, this instruction clearly delineates separate Aircraft Structural Integrity Program and structural management roles and responsibilities.

1.1.3. **Paragraph 3** and its subparagraphs contain specific directive guidance and procedures for the Aircraft Structural Integrity Program.

1.2. Air Force Aircraft Structural Integrity Program.

1.2.1. The Aircraft Structural Integrity Program requires aircraft program offices and Major Commands (MAJCOM) to collaborate on a series of time-phased tasks during the development, acquisition, production, modification, and sustainment of Air Force aircraft. These collaborative tasks support aircraft mission readiness and airworthiness assurance.

1.2.2. The goal of the Aircraft Structural Integrity Program is to ensure the structural safety, performance, durability, and supportability of Air Force aircraft throughout their service lives, with the least possible economic burden.

1.2.2.1. The objectives of the Air Force Aircraft Structural Integrity Program are to:

1.2.2.2. Define the structural integrity requirements necessary to support airworthiness assurance.

1.2.2.3. Establish, evaluate, substantiate, and certify the structural integrity of aircraft structures.

1.2.2.4. Acquire, evaluate, and apply aircraft usage and maintenance data to ensure the continued structural integrity of operational aircraft.

1.2.2.5. Provide quantitative information for decisions on force structure planning, inspection, modification priorities, and risk management. The Aircraft Structural Integrity Program also provides information on expected life cycle costs and related operational and support issues.

1.2.2.6. Provide a basis for improving structural criteria and methods of design, manufacturing, evaluation, and substantiation for future aircraft systems and modifications.

1.3. **Air and Space Equipment Structural Management.**

1.3.1. This publication addresses the structural management disciplines of advanced composites, corrosion prevention and control, low observables supportability, metals technology, and nondestructive inspection (commonly abbreviated as "NDI"). Structural management disciplines complement the Aircraft Structural Integrity Program. They also optimize safety, serviceability and readiness throughout the life cycle of air and space equipment.

1.3.2. Structural management, as addressed in this publication, refers to the technical and engineering support activities associated with requirements development, design, maintenance, and integrity monitoring-assessment of air and space physical structural equipment and assets. AFMC maintains offices with structural management technical experts. These experts advise MAJCOMs, program managers, and the AFMC enterprise on the structural management disciplines. They provide engineering and technical support on the maintenance, training, supportability, and development of metal, plastics, bonded honeycomb and advanced composite repair capabilities. They also support Air Force-wide implementation of facility, tooling, processing and equipment guidelines. The AFMC structural management technical experts may also advise or review facilities and infrastructure projects. However, this publication only addresses the structural management requirements and responsibilities for non-facilities Air Force air and space equipment. **Note:** Specific directive guidance for the structural maintenance career fields, maintenance technicians, and maintenance specialties is included in AFI 21-101, *Aircraft and Equipment Maintenance Management.* AFI 63-140 and the structural maintenance guidance in AFI 21-101 are complementary.

1.3.2.1. Advanced composites are composed of various filament reinforcements of high strength, stiffness, electrical, chemical or other specialized properties embedded in matrix materials with tailored physical properties. AFMC advanced composites technical experts provide engineering and technical support on the repair, maintenance, training, development, testing, and selection of advanced composites. They also support Air Force-wide implementation of facility, tooling, processing and equipment guidelines for advanced composites supportability processes in accordance with Technical Order (TO) 1-1-690, *General Advanced Composite Repair Processes Manual.*

1.3.2.2. Corrosion prevention and control is the materials, processes, and activities utilized to combat the deterioration of a material or its properties due to the reaction of that material with its chemical environment. AFMC corrosion prevention and control technical experts provide engineering and technical support to the Air Force Corrosion Control and Prevention Executive (a position required in each Military Service by Title 10 United States Code Section 2228, *Office of Corrosion Policy and Oversight*), in addition to program managers and MAJCOMs, for corrosion prevention, mitigation, and control on air and space systems Air Force-wide.

1.3.2.3. Low observables are the technologies implemented to control the radar, infrared, visual, and acoustic signatures in aircraft to reduce their vulnerability. AFMC low observables technical experts provide engineering and technical support to ensure the integrity, reliability and maintainability of low observable materials, repair processes, nondestructive inspections, signature diagnostic measurements, and signature health assessments for air and space systems Air Force-wide.

1.3.2.4. Metals technology encompasses the technologies used in the manufacture, fabrication, heat treatment, welding, inspection, and testing of metal parts for aircraft and aerospace equipment. AFMC metals technology technical experts provide engineering and technical support for additive manufacturing (i.e., 3-dimensional printing) and support its implementation Air Force-wide. They establish Air Force-wide guidance for welding certification, and advise the AFMC enterprise and MAJCOMs on aerospace welding repairs and processes, as requested.

1.3.2.4. **(AFRC)** Units interested in procuring 3D printers/3D printing equipment will submit procurement requests to HQ AFRC/A4MS (**afrc.a4ms@us.af.mil**) prior to purchase, and regardless of cost or intended use (aircraft or support equipment). All requests must include 3D equipment make and model number along with justification for the requirement **(T-2)**.

1.3.2.5. Nondestructive inspection is an inspection process or technique designed to reveal the damage at or beneath the external surface of a part or material without adversely affecting the material or part being inspected. Nondestructive inspection methods require specific long term training, experience and qualifications. AFMC Nondestructive Inspection experts provide engineering and technical support to program managers and MAJCOMs on nondestructive inspection standards, methods, processes, equipment, and personnel certification.

1.4. **Waivers and Tailoring for Acquisition Programs.**

1.4.1. Waivers. Waivers for compliance requirements that this instruction places on the acquisition execution chain are not elevated through the MAJCOM-wing-unit organizational chain of authority. The acquisition execution chain is defined in AFI 63-101/20-101, *Integrated Life Cycle Management*. It includes the Service Acquisition Executive, Program Executive Officer, Decision Authority, the program manager, or other program office members. Therefore, tiering in accordance with the standard organizational terminology of AFI 33-360 cannot be applied. Instead, the waiver authority for each compliance requirement applied to the acquisition execution chain by this instruction is specified in the text.

1.4.2. Tailoring. Acquisition program managers, with Decision Authority approval, retain the ability to tailor and streamline strategies, oversight, reviews, phases, decision levels, documentation, regulatory requirements and information consistent with the tailoring guidance in AFI 63-101/20-101 and DoDI 5000.02T. Tailoring is especially appropriate for programs that are rapidly fielding capabilities, for example, Middle Tier Acquisition pathway programs or the acquisition of commercial off-the-shelf systems.

2. Roles and Responsibilities.

2.1. **Assistant Secretary of the Air Force for Acquisition, Technology & Logistics (SAF/AQ):**

2.1.1. Oversees Air Force Aircraft Structural Integrity Program policy.

2.1.2. Supports aircraft program office Aircraft Structural Integrity Program implementation as a part of the integrated life cycle management of systems.

2.1.3. Works with the Deputy Chief of Staff, Logistics, Engineering and Force Protection (AF/A4) and the Commander, AFMC (AFMC/CC) to designate the Air Force Aircraft Structural Integrity Program Technical Advisor.

2.1.4. Works with AF/A4 and AFMC/CC to develop and implement technician and artisan certification and recertification standards applicable to structural maintenance.

2.2. **Deputy Chief of Staff, Logistics, Engineering and Force Protection (AF/A4):**

2.2.1. Integrates Aircraft Structural Integrity Program into field-level maintenance policy.

2.2.2. Supports Aircraft Structural Integrity Program-related planning, programming, and budgeting activities for each aircraft program.

2.2.3. Promotes initiatives, develops policy and issues implementation guidance that enhances effectiveness of structural materials and fabrication maintenance. AF/A4 also resolves training issues in accordance with AFI 36-2651, *Air Force Training Program,* for the structural disciplines that directly involve Air Force Specialty Code 2A7XX and the equivalent civilian workforce.

2.3. **Commanders, Major Commands (MAJCOM) and Director, Air National Guard:**

2.3.1. Establish an Aircraft Structural Integrity Program office of primary responsibility for managing the Aircraft Structural Integrity Program command-wide.

2.3.1. **(AFRC)** AFRC/A4MS Branch Chief (**afrc.a4ms@us.af.mil**) is the command-wide ASIP and Structural Manager OPR for AFRC assigned weapon systems. **Note:** OPR would formulate an ASIP team with applicable A3 staff and/or A4M Division staff when ASIP issues require a MAJCOM response.

2.3.2. Develop, publish, and update documentation specifying MAJCOM or lead operating command Aircraft Structural Integrity Program responsibilities in accordance with this instruction.

2.3.3. Assist program managers in the development, maintenance, and implementation of Aircraft Structural Integrity Program master plans as requested.

2.3.4. Install, operate, and maintain Aircraft Structural Integrity Program hardware. This includes systems that support loads and environment spectra surveys and individual aircraft tracking data collection, transfer, and analysis. These systems are maintained in a manner sufficient to support the valid data capture rates required by the aircraft-specific Aircraft Structural Integrity Program Master Plans.

2.3.5. Ensure that unit personnel collect and report data in accordance with the valid data capture rates defined by the Aircraft Structural Integrity Program Master Plans.

2.3.6. Assist program office Aircraft Structural Integrity Program managers in the development and implementation of corrective actions as needed to achieve required valid data capture rates.

2.3.7. Evaluate annual Aircraft Structural Integrity Program summaries as they apply to force structure, aircraft operational use and budgeting.

2.3.8. Ensure that unit personnel conduct structural inspections required by an aircraft's Aircraft Structural Integrity Program in accordance with the appropriate schedules, processes, procedures, and TOs.

2.3.9. Support command-wide integrated life cycle execution of structural disciplines by:

2.3.9.1. Assigning MAJCOM functional manager(s) to each structural discipline as determined by and applicable to the specific MAJCOM.

2.3.9.1. **(AFRC)** AFRC/A4MS Fabrication Program Manager is AFRC's life cycle execution program manager of aircraft and aircraft support equipment structural discipline(s).

2.3.9.1.1. **(Added-AFRC)** AFRC/A4MA WSM will assist AFRC/A4MS with life cycle execution program manager MAJCOM duties for assigned aircraft weapon system.

2.3.9.2. Ensuring personnel performing nondestructive inspections (including contracted personnel) are certified in accordance with AFI 21-101 and National Aerospace Standard 410, *Certification & Qualification of Nondestructive Test Personnel*, as applicable. **Note:** The AFMC nondestructive inspection focal point may periodically audit and validate the certification of contracted nondestructive inspection personnel.

2.3.9.3. Providing subject matter expert support for TO change validation and verification processes.

2.3.9.4. Supporting field testing of materials, processes, facilities, and equipment.

2.3.9.5. Supporting proficiency testing and probability of detection studies in operational and depot environments.

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

2.4. **Commander, AFMC (AFMC/CC):**

2.4.1. Includes Aircraft Structural Integrity Program master plan development, maintenance, and implementation requirements in MAJCOM self-assessment communicator checklists.

2.4.2. Sustains and enhances a data management capability to support Aircraft Structural Integrity Program (e.g., the Aircraft Structural Integrity Management Information System).

2.4.3. Provides structural management integrated life cycle engineering and technical support to Headquarters Air Force, MAJCOMs, program managers, and to Air Force advisory boards for design, test, redesign, analysis and sustainment of assets associated with structural disciplines. This engineering and technical support includes:

2.4.3.1. Evaluating materials, processes, facilities and equipment requirements for structural impacts. This includes viability assessment of emerging material, nondestructive inspection, and repair technologies in structural disciplines and assistance with transition to new and existing systems.

2.4.3.2. Supporting Air Force career field managers, MAJCOM functional managers, Air Education and Training Command training managers, utilization and training workshops, and career development course writers for education and training of Air Force Specialty Code 2A7XX personnel.

2.4.3.3. Conducting Air Force structural management assessments and corrosion surveys at least every five years or at the request of a MAJCOM. These assessments and surveys identify deficiencies in the Air Force implementation of structural management disciplines and assist in the prioritization of AFMC structural management projects. Execute these assessments and surveys in accordance with AFI 90-201, *The Air Force Inspection System*.

2.4.3.4. Coordinating with environment, safety, and occupational health offices of primary responsibility to assist users in meeting applicable environment, safety, and occupational health requirements. This includes providing inputs associated with structural disciplines to Air Force occupational safety and health publications.

2.4.3.5. Establishing AFMC offices and focal points that provide technical experts for the structural disciplines listed in **paragraph 1.3.2** and designating managers for the structural management-related TOs identified in **Attachment 2** to ensure their currency, applicability, and completeness.

2.4.3.6. Providing program managers and MAJCOMs verifiable engineering inspection reliability data based on probability of detection and proficiency studies. These studies are conducted in accordance with Military Handbook 1823 (MIL-HDBK-1823), *Nondestructive Evaluation System Reliability Assessment* and Military Standard 1530 (MIL-STD-1530), *DoD Standard Practice for Aircraft Structural Integrity Program,* every five years or sooner when requested by MAJCOMs or program managers.

2.4.3.7. Establishing and maintaining the Air Force-wide process for the certification of all Air Force civil service nondestructive inspection personnel who require certification in accordance with AFI 21-101 or this instruction.

2.5. **Air Force Aircraft Structural Integrity Program Technical Advisor:**

2.5.1. Reviews all Aircraft Structural Integrity Program master plans including updates and makes approval recommendations to the Program Executive Officer. **(T-2).**

2.5.2. Reviews execution of the Aircraft Structural Integrity Program for each mission design series. **(T-2)**. Identifies trends, gaps, and opportunities for improvement in the Aircraft Structural Integrity Program execution, and will report these findings to Program Executive Officers and lead and operating MAJCOMs. **(T-2)**.

2.6. **Program Executive Officers (or delegated Decision Authority, when delegated in accordance with AFI 63-101/20-101):**

2.6.1. Ensure that program managers establish Aircraft Structural Integrity Programs and develop Aircraft Structural Integrity Program Master Plans for each mission design series operated by the Air Force in their portfolio.

2.6.2. Ensure aircraft program managers are executing the Aircraft Structural Integrity Program requirements in a timely manner as an integral part of life cycle management.

2.6.3. Utilize Aircraft Structural Integrity Program information in modification management and implementation.

2.6.4. Approve all Aircraft Structural Integrity Program master plans including updates.

2.7. **Program Managers:**

2.7.1. Plan, program, and budget funds required to develop, maintain, and execute the Aircraft Structural Integrity Program.

2.7.2. Ensure that program life cycle cost estimates developed in accordance with AFI 65-508, *Cost Analysis Guidance and Procedures,* include estimated costs of supporting the Aircraft Structural Integrity Program.

2.7.3. Oversee the development, modification and execution of the Aircraft Structural Integrity Program and ensure that the Aircraft Structural Integrity Program Master Plan is approved, updated and executed.

2.7.4. Unless waived in writing by the Program Executive Officer, will appoint an Aircraft Structural Integrity Program manager.

2.7.5. Ensure the usage collection and evaluation systems for loads and environment spectra survey and individual aircraft tracking achieve the valid data capture rates defined in the approved Aircraft Structural Integrity Program Master Plan. Monitor all Aircraft Structural Integrity Program flight data retrieval results to identify incomplete or missing data. Notify MAJCOM Aircraft Structural Integrity Program offices of primary responsibility of flight data retrieval discrepancies.

2.7.6. Ensure processes are in place for collecting, processing, storing, analyzing and reporting structural maintenance data essential to evaluating aircraft structural integrity.

2.7.7. Unless waived in writing by the Program Executive Officer, will annually provide summaries to lead commands of past aircraft operational usage and the effect on the structural integrity.

2.7.8. Establish and document the life cycle inspection and modification actions and schedules required to maintain the structural integrity of each aircraft system.

2.7.9. Ensure Aircraft Structural Integrity Program aircraft usage data requirements are integrated with mandatory crash survivable data recorder requirements whenever possible.

2.7.10. Coordinate new or modified nondestructive inspection procedures with the center nondestructive inspection manager or designated individual, who is Level 3 certified in accordance with National Aerospace Standard 410. **Note:** Level 3 certification ensures that the individual is capable of developing, qualifying and approving nondestructive test and inspection procedures, methods, and techniques.

2.7.11. Ensure contract support requirements for nondestructive inspection personnel contain provisions to have certified personnel in accordance with National Aerospace Standard 410.

2.8. **(Added-AFRC)** For ASIP requirements, the MXG/CC (or equivalent) will:

2.8.1. **(Added-AFRC)** Ensures an ASIP is established **(T-2)**.

2.8.2. **(Added-AFRC)** Appoint by letter an officer or NCO as the unit ASIP project officer **(T-2)**.

2.8.3. **(Added-AFRC)** Establish written requirements to ensure continuity of local ASIP processes **(T-3)**. **Note:** Established local requirements may be directive or non-directive; refer to AFI 33-360 for publishing directive and non-directive products.

2.8.3.1. **(Added-433AW)** Local Aircraft Structural Integrity Program roles and responsibilities and processes are established and written in AFI 21-101_AFRCSUP_433AWSUP, *Aircraft and Equipment Maintenance Management*, paragraphs 11.10.1 through 11.10.1.1.4..

2.8.4. **(Added-AFRC)** Ensure measures are in place to capture and report ASIP usage data loads/environment spectra surveyand individual aircraft tracking data collection **(T-2)**. **Note:** The effort is to achieve the required data capture rates.

2.9. **(Added-AFRC)** The MXG ASIP Project Officer will:

2.9.1. **(Added-AFRC)** Act as OPR for local ASIP usage data from loads/environment spectra survey, individual aircraft tracking collection, and the local ASIP publication **(T-2)**. As a minimum, the publication will:

2.9.1.1. **(Added-AFRC)** Identify maintenance and aircrew activities to collect and submit ASIP usage data **(T-3)**.

2.9.1.2. **(Added-AFRC)** Identify ASIP Project Officer, ASIP Monitor, Inspection Section, Plans Scheduling and Documentation (PS&D), Aircrew, and Debrief Section responsibilities (as applicable) **(T-3)**.

2.9.1.3. **(Added-AFRC)** Address appointment of ASIP Monitors at home station and deployed/contingency locations **(T-2)**.

2.9.1.4. **(Added-AFRC)** Identify procedures to collect and submit ASIP usage data (e.g. computer files downloaded from a flight data recorder, tapes obtained from a flight data recorder, “bubble sheets”) **(T-2)**.

2.9.1.4.1. **(Added-AFRC)** ASIP usage data must be submitted no later than the end of next duty day after the specified flying period **(T-2)**.

2.9.1.5. **(Added-AFRC)** Identify procedures to collect and submit ASIP usage data at deployed locations **(T-2)**.

2.9.1.6. **(Added-AFRC)** Identify procedures, not listed in applicable Technical Order (TO), to maintain flight data recorders on equipped aircraft and the associated downloading equipment or storage media; submit any recommended TO changes per TO 00-5-1, *AF Technical Order System* **(T-2)**.

2.9.1.6.1. **(Added-433AW)** Procedures are written and found in AFI 21-101_AFRCSUP_433AWSUP, paragraphs 11.10.1.3.2 through 11.10.1.3.

2.9.1.7. **(Added-AFRC)** Address training requirements for technicians responsible for ASIP usage data collection and submittal **(T-2)**.

2.9.1.7.1. **(Added-433AW)** Training Requirements:

2.9.1.7.1.1. **(Added-433AW)** All monitors will be familiar with the references in DAFI 63-140_AFRCSUP, Attachment 1, AFI 21-101-AFRCSUP, and this instruction.

2.9.1.7.1.2. **(Added-433AW)** Monitors must periodically review the Ageing Fleet Integrity and Reliability Management (AFIRM) web site located at: **https://c5.robins.af.mil/AFIRM.DNA/home-Home/SiteSelection** to access updated information.

2.9.1.8. **(Added-AFRC)** Identify documentation requirements for ASIP usage data collection and submittal (e.g., dates for downloads and submittals, dates for tape installation/removal/submittal, aircraft and flight data recorder serial numbers associated with submittals) **(T-2)**.

2.9.2. **(Added-AFRC)** Inform AFRC/A4MS (**afrc.a4ms@us.af.mil**) about ASIP issues impacting Aircraft Availability, data capture rates, individual aircraft structural integrity issues and corrective action(s) **(T-2)**. Copy AFRC/A4MS (**afrc.a4ms@us.af.mil**) on all correspondence with SPO/PM regarding ASIP issues **(T-2)**.

2.9.3. **(Added-AFRC)** Ensure ASIP hardware is installed, tested, and maintained per applicable guidance/TO and established directives **(T-2)**.

2.9.4. **(Added-AFRC)** Inspection Section NCOIC, in coordination with PS&D, will establish Job Standards with the required ASIP inspections (as applicable by aircraft Mission Design Series) **(T-2)**.

2.9.4.1. **(Added-AFRC)** Ensure all ASIP inspections are complied with prior to closing out the inspection **(T-2)**.

2.9.5. **(Added-AFRC)** Ensure ASIP inspection Job Standards are loaded in the Maintenance Information System and scheduled **(T-2)**.

3. Aircraft Structural Integrity Program Requirements and Procedures.

3.1. Unless waived in writing by the Decision Authority, the program manager shall establish an Aircraft Structural Integrity Program for each mission design series the Air Force acquires, uses, or leases.

3.2. For each aircraft mission design series developed or modified by the Air Force, the program manager shall implement an Aircraft Structural Integrity Program that complies with MIL-STD-1530, unless waived in writing by the Decision Authority. For these mission design series, unless waived in writing by the Decision Authority, the program manager shall:

3.2.1. Draft an initial Aircraft Structural Integrity Program Master Plan for the program as early as possible in the Technology Maturation and Risk Reduction phase. The initial Aircraft Structural Integrity Program Master Plan shall identify the tasks required to

achieve structural integrity and to determine structural safety, performance, durability, supportability, and life cycle costs for the aircraft structure.

3.2.2. Obtain Program Executive Officer (or delegated Decision Authority) approval for the Aircraft Structural Integrity Program Master Plan before the system requirements review.

3.2.3. Update the Aircraft Structural Integrity Program Master Plan during the Engineering and Manufacturing Development, Production and Deployment, and Operations and Sustainment phases of the program to document changes in the Aircraft Structural Integrity Program.

3.2.4. For aircraft in sustainment, execute the Aircraft Structural Integrity Program as an integral part of the total system engineering and management effort in the sustainment of the aircraft.

3.2.5. For aircraft that are to be modified, fly new missions, or whose operation will extend past the aircraft's certified design service life, develop a revised Aircraft Structural Integrity Program Master Plan. Obtain Program Executive Officer approval of the revised plan before modifications are executed, regular flights begin under the new mission, or commencing operations beyond the previously certified service life.

3.3. For each aircraft mission design series operated by the Air Force but not developed or modified by the Air Force, the program manager shall, unless waived in writing by the Program Executive Officer, use Military Standard 1530 as the basis for implementing Aircraft Structural Integrity Program tasks and elements in the program. Program managers select and implement tasks and elements necessary to ensure the aircraft's structural safety, performance, durability, supportability, and affordability for the operational life of structural components, while remaining consistent with the program's acquisition strategy and engineering authority over the aircraft. For these mission design series, the program manager, unless waived in writing by the Program Executive Officer, shall:

3.3.1. Document the tailored program in an Aircraft Structural Integrity Program Master Plan.

3.3.2. Finalize the Aircraft Structural Integrity Program Master Plan and obtain Program Executive Officer (or delegated Decision Authority) approval before the Air Force operates the aircraft.

4. (Added-AFRC) Unit Corrosion Control and Aircraft Markings.

4.1. **(Added-AFRC)** Responsibilities.

4.1. **(433AW)** Responsibilities for 433D Maintenance Group (MXG) Personnel. This instruction addresses the approval and application of aircraft artwork/optional markings applied to 433AW C-5M aircraft. Aircraft artwork improves unit morale, esprit de corps and maintains unit history.

4.1.1. **(Added-AFRC)** AFRC units will provide an informational copy of any outside inspection/assessment/survey results conducted on any of the unit fabrication disciplines (Aircraft Structural Maintenance (ASM), Metals Technology (MT), Non-Destructive Inspection (NDI), and Low Observable (LO)) **(T-2)**. Send copy of report to HQ AFRC/A4MS (**afrc.a4ms@us.af.mil**). Courtesy copy the applicable NAF/A4M.

4.1.2. **(Added-AFRC)** HQ AFRC/A4MS (**afrc.a4ms@us.af.mil**) is the MAJCOM OPR for distinctive unit identifiers. HQ AFRC/A4MS will coordinate with HQ ACC/A4M for new identifiers or for removing identifiers from the master listing **(T-2)**.

4.1.3. **(Added-AFRC)** Wings will develop a local supplement to this instruction and the AFRC supplement IAW AFI 33-360 for MAJCOM directed and MAJCOM authorized markings identified in **Table 4.2**, **Table 4.3**, and Weapons System Specific markings identified in **Attachment 3** **(T-2)**. The wing supplement will include:

4.1.3.1. **(Added-AFRC)** Standard MAJCOM directed/MAJCOM authorized markings or Weapons System Specific markings on the wing's assigned aircraft, unless otherwise directed in this instruction, TO 1-1-8 *Application and Removal of Organic Coatings, Aerospace and Non-Aerospace Equipment*, or MDS specific TO **(T-3)**.

4.1.3.2. **(Added-AFRC)** Specific colors, dimensions, lettering styles and locations of MAJCOM authorized markings, unless otherwise directed in this instruction, TO 1-1-8, or MDS specific TO **(T-3)**.

4.1.3.3. **(Added-AFRC)** Crew Name lettering style **(T-3)**.

4.1.3.4. **(Added-AFRC)** Colored digital renderings of MAJCOM authorized markings in **Table 4.3** **(T-2)**.

4.1.3.4.1. **(Added-433AW)** Colored digital renderings of current 433AW C-5M aircraft markings are in **Attachment 4** of this instruction.

4.1.3.5. **(Added-AFRC)** Wing process for approval of mission activity, crew accomplishment, and esprit de corps insignia, aircraft art and nose art **(T-2)**.

4.1.3.5.1. **(Added-AFRC)** Public Affairs Office (PA) and Wing Historian Office (HO) must review all esprit de corps insignia and marking, aircraft art, and nose art **(T-2)**. **Note:** Wing will coordinate with the HQ AFRC Historian Office for review if the Wing does not have a Historian Office.

4.1.3.5.1.1. **(Added-AFRC)** Wing will coordinate with the HQ AFRC/PA office for concurrence of any proposed aircraft art to include Esprit De Corps markings (Aircraft/Nose Art) **(T-2)**.

4.1.3.5.1.2. **(Added-433AW)** 433MXG Requesting Aircraft/Nose Art Process:

4.1.3.5.1.2.1. **(Added-433AW)** The Dedicated Crew Chief (DCC) will coordinate with the Aircraft Structural Maintenance section to ensure proposed Aircraft/Nose Art designs are within the unit's capability to manufacture with available equipment and materials.

4.1.3.5.1.2.2. **(Added-433AW)** DCC will initiate the request for Nose Art by filling out AF Form 1768, Staff Summary Sheet, (ask Sheet Metal Shop Supervisor for Pre-filled Template) and provide photos of requested Aircraft/Nose Art.

4.1.3.5.1.2.3. **(Added-433AW)** Squadron Supervision will review and approve all proposed Aircraft/Nose Art prior to forwarding requests to the Maintenance Group Commander (MXG/CC) for approval.

4.1.3.5.1.2.4. **(Added-433AW)** MXG/CC will route approved AF Form 1768 Nose Art requests to the Public Affairs Office, wing Judge Advocate, and wing Historian Office for approval prior to forwarding requests to the Wing Commander for final approval.

4.1.3.5.1.2.5. **(Added-433AW)** Approved Aircraft/Nose Art will be fabricated, applied, and removed by the 433D Maintenance Squadron, Aircraft Structural Maintenance section.

4.1.3.6. **(Added-AFRC)** Paint scores shall be accomplished and documented after each aircraft and AGE wash; therefore the wing supplement must include a paint scoring system that accounts for paint condition, local corrosion severity index, and calendar time IAW TO 1-1-8, 1-1-691, and 35-1-3 **(T-2)**.

4.1.3.6.1. **(Added-AFRC)** Paint scores on Support Equipment (SE) shall be accomplished during scheduled corrosion control inspections **(T-2)**. **Note:** Units may use score sheets **Attachment 2** Non-Powered AGE, **Attachment 3** for Powered Age, or develop a local paint scoring system to add in the wing supplement IAW TO 35-1-3.

4.2. **(Added-AFRC)** General Aircraft Marking Guidance and Standards. Comply with TO 1-1-8, System Program Director (SPD) approved aircraft drawings, General and Mission Design Series (MDS) specific TOs, and this instruction **(T-2)**. In addition to the general guidance below, refer to **Table 4.1**, **Table 4.2**, **Table 4.3**, and **Attachment 3**. Do not apply markings to aircraft unless authorized in references above or by appropriate authorizing official **(T-2)**.

4.2.1. **(Added-AFRC)** "AFRC" is the only authorized command marking to be applied to the vertical stabilizer on all AFRC owned aircraft **(T-2)**.

4.2.2. **(Added-AFRC)** Rotate commanders and demonstration aircraft to prevent unnecessary paint build-up **(T-3)**. Rotation interval is determined by the unit. Identify rotation interval in the unit supplement to this instruction **(T-2)**.

4.2.3. **(Added-AFRC)** Units are encouraged to use sign making equipment and aircraft quality vinyl lettering when practical.

4.2.4. **(Added-AFRC)** Deviations in marking or decal locations are authorized up to 6 inches from the designated location for B-52, C-5, C-17, C-130, KC-46, and KC-135 MDS aircraft and 2 inches for A-10, HH-60, and F-16 MDS aircraft **(T-2)**.

4.2.5. **(Added-AFRC)** Aircraft gun ports will be painted the same color as camouflaged area of aircraft **(T-2)**.

4.2.6. **(Added-AFRC)** The location of MAJCOM authorized markings will not conflict with or replace markings required by TO 1-1-8, SPD approved aircraft drawings, General and MDS specific TOs **(T-2)**.

4.2.7. **(Added-AFRC)** C-40C is not authorized mission activity, crew accomplishment, or esprit de corps insignia and markings or other MAJCOM authorized markings as identified in **Table 4.3** **(T-2)**. **Note:** 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).

4.2.8. **(Added-AFRC)** A tail stripe is used to identify an aircraft flight/flying squadron. The WG/CC is the approval authority for tail stripe design **(T-2)**. Each flight/flying squadron may have a unique tail stripe as outlined in the local supplement to this instruction. Refer to **Table 4.3** and **Attachment 3** for additional guidance.

4.2.9. **(Added-AFRC)** Armament placards are not required. **Note:** TO 11A-1-33, *Handling and Maintenance of Explosives-Loaded Aircraft*, and TO 00-20-1, *Aerospace Equipment Maintenance inspection, Documentation, Policies, and Procedures* provide instruction to document armament and munitions.

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

4.3.1. **(Added-AFRC)** Crew names, if elected, will be applied IAW TO 1-1-8. A background block or border may be applied in black or contrasting color to the section of the aircraft where applied (e.g. dark/light gray) **(T-2)**.

4.3.2. **(Added-AFRC)** Deployed Aircraft. Aircraft that are deployed to operate from a location in a combat zone will adhere to the combat deployment sanitization requirement in accordance with T.O. 1-1-8. MAJCOM/A4, WG/CCs and MXG/CCs are authorized to direct the removal of all names for the duration of contingency operations **(T-2)**.

4.3.3. **(Added-AFRC)** Transient Aircraft. Aircraft that temporarily stop at a destination are transient, not deployed, and are not subject to the combat deployment sanitization requirement in accordance with T.O. 1-1-8. Aircrew and DCC/ADCC exterior name markings are authorized to remain on aircraft when transiting a combat zone **(T-3)**.

4.3.4. **(Added-AFRC)** Crew names will contain military rank, first name and last name **(T-2)**. First name initial may be used in lieu of first name. The use of call signs and/or nicknames is not authorized **(T-3)**. Designated commander's aircraft crew names may have different lettering, but will not exceed 3 inches in height **(T-2)**.

4.3.5. **(Added-433AW)** Color, size, and location of Crew Name markings will be uniform for all assigned aircraft.

4.3.6. **(Added-433AW)** DCC will coordinate with the Aircraft Structural Maintenance section to fabricate and apply Crew Names to all 433AW C-5M Super Galaxy aircraft.

4.4. **(Added-AFRC)** Wing Commander's (WG/CC) Aircraft Markings.

4.4.1. **(Added-AFRC)** Except for units assigned KC-46 or C-40 aircraft, the WG/CC is authorized one aircraft marked with "commander" or "wing pride" unique markings. Marking colors, size and placement will be outlined in the local supplement to this instruction **(T-2)**.

4.4.2. **(Added-AFRC)** The WG/CC may designate flying Group/Squadron Commanders (GP/CC, SQ/CC) aircraft.

4.4.3. **(Added-AFRC)** In Active Associations, the host WG/CC may authorize specific aircraft to be identified as the associated flying units WG/CC, GP/CC, or SQ/CC aircraft in support of ownership, pride, and esprit de corps.

4.5. **(Added-AFRC)** Aircraft Travel Pods.

4.5.1. **(Added-AFRC)** Paint travel pods the same color as the assigned aircraft with markings as authorized by the applicable TOs **(T-2)**. Units may use gloss paint on travel pods for ease of maintenance unless prohibited by General or MDS specific TOs.

4.5.2. **(Added-AFRC)** WG/CC approves paint schemes, colors, insignias and markings for designated WG/CC, GP/CC, or SQ/CC travel pods in the local supplement to this instruction **(T-2)**. WG/CC, GP/CC, SQ/CC travel pods may contain the position and name of the individual and appropriate insignia. Lettering style is at commander's discretion.

4.6. **(Added-AFRC)** Local Station Numbers.

4.6.1. **(Added-AFRC)** Units will apply Station Numbers (e.g. nose numbers) IAW MDS specific TOs or **Attachment 3**, unless otherwise directed **(T-2)**.

4.6.2. **(Added-AFRC)** Station Numbers will be block or Helvetica letter style not to exceed four digits, unless otherwise specified in MDS specific TOs or **Attachment 3 (T-2)**.

4.7. **(Added-AFRC)** Mission Activity, Crew Accomplishment, and Esprit De Corps Insignia and Markings which identifies any specialized artwork (example aircraft art, nose art "Let's Roll") that can be applied to any area of the aircraft will not to exceed 36" x 36" to include interior surfaces of doors and panels **(T-2)**.

4.7.1. **(Added-AFRC)** HQ AFRC/A4 has delegated approval authority for mission activity, crew accomplishment and esprit de corps markings to the assigned WG/CC except for units assigned KC-46 aircraft **(T-2)**. **Note:** Refer to T.O. 1-1-8 and **Attachment 3** for details.

4.7.1.1. **(Added-AFRC)** WG/CC will ensure compliance with the limits of specialized artwork design and theme outline in this instruction, MDS specific limitations per MDS TOs, and review all mission activity, crew accomplishment and esprit de corps markings applied to assigned aircraft and support equipment **(T-2)**. WG/CC will not delegate the responsibilities outlined here in this paragraph **(T-2)**.

4.7.1.2. **(Added-AFRC)** Wing Corrosion Manager will maintain hard copy photos and records of all WG/CC approved mission activity, crew accomplishment, and esprit de corps markings for assigned aircraft **(T-2)**.

4.7.2. **(Added-AFRC)** Mission Activity, Crew Accomplishment, and Esprit de Corps markings, aircraft art, nose art, design, theme, etc. must adhere to the following requirements.

4.7.2.1. **(Added-AFRC)** Be representative of unit or civilian community **(T-2)**.

4.7.2.2. **(Added-AFRC)** Be distinctive, symbolic, and designed in good taste **(T-2)**.

4.7.2.3. **(Added-AFRC)** Enhance unit pride **(T-2)**.

4.7.2.4. **(Added-AFRC)** Complies with equal opportunity policies in accordance with AFI 36-2710, *Equal Opportunity Program* **(T-2)**.

4.7.2.5. **(Added-AFRC)** Applied using subdued or matte finish **(T-2)**.

4.7.2.6. **(Added-AFRC)** Must not interfere with any mandatory markings **(T-2)**.

4.7.3. **(Added-AFRC)** The Wing is responsible for all copyright/trademark requirements and non-infringement compliance **(T-2)**.

4.8. **(Added-AFRC)** Higher Headquarters Approval Requests.

4.8.1. **(Added-AFRC)** Any aircraft marking that requires higher headquarters approval will have the following:

4.8.1.1. **(Added-AFRC)** AFRC Snowflake found in AFRC TMT Templates **(T-2)**. Provide strong justification for the proposed insignia or markings **(T-2)**. Clearly state the proposed dimensions and location of application on the aircraft **(T-2)**.

4.8.1.2. **(Added-AFRC)** A 8" X 10" color photo or digital image that clearly illustrates the proposed insignia or marking **(T-2)**.

4.8.1.3. **(Added-AFRC)** WG/CC endorsement, include Public Affairs (PA) and Historian (HO) review in the package **(T-2)**.

4.8.2. **(Added-AFRC)** Unit will process approval request through chain of command per TO 1-1-8. Send copy of approved package to HQ AFRC/A4 Director (**AFRC.A4Workflow@us.af.mil**) **(T-2)**.

4.9. **(Added-AFRC)** Aerial Victory or Successful Weapons Release Markings.

4.9.1. **(Added-AFRC)** Fighter aircraft awarded a verified aerial victory is authorized to display a six inch green star with a ½ inch black border located just below and centered on the pilots name block. The type of aircraft shot down shall be inside the star in ½ inch white lettering **(T-2)**. For aircraft with more than one aerial victory, a star is authorized for each aircraft shot down **(T-2)**.

4.9.2. **(Added-AFRC)** Designated bomber aircraft with 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)**.

4.10. **(Added-AFRC)** External Fuel Tanks.

4.10.1. **(Added-AFRC)** External fuel tanks shall be painted the same color and finish as existing aircraft coating, unless otherwise directed in MDS specific TOs **(T-2)**.

4.10.2. **(Added-AFRC)** A marking is optional for tracking purposes; location and size is at WG/CC discretion. Marking will not interfere with any mandatory markings.

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

4.11.1. **(Added-AFRC)** Wings will accomplish naming of aircraft IAW TO 1-1-8 and this instruction **(T-2)**. Naming of aircraft includes "Spirit of…", "City of…", "…Aircraft of…" (Example, Thunderbolt of Ann Arbor).

4.11.2. **(Added-AFRC)** Submit requests for approval IAW **paragraph 4.8 (T-2)**.

4.11.3. **(Added-AFRC)** The Wing Corrosion Manager will maintain photos and records of all AF/CV approved aircraft names for assigned aircraft **(T-2)**.

4.11.4. **(Added-AFRC)** The Wing Corrosion Manager will forward a copy of AF/CV approved photos/records to HQ AFRC/A4MS, Fabrication Program Manager (**afrc.a4ms@us.af.mil**) and appropriate NAF/A4 for official filing and tracking IAW TO 1-1-8 and this instruction **(T-2)**.

4.12. **(Added-AFRC)** Aircraft Transfer.

4.12.1. **(Added-AFRC)** The following markings will be removed prior to permanent transfer of aircraft to other units or MAJCOMs.

4.12.1.1. **(Added-AFRC)** Organizational insignias **(T-3)**.

4.12.1.2. **(Added-AFRC)** Distinctive Unit Identifier **(T-3)**.

4.12.1.3. **(Added-AFRC)** Tail Stripe **(T-3)**.

4.12.1.4. **(Added-AFRC)** Crew names **(T-3)**.

4.12.1.5. **(Added-AFRC)** MAJCOM authorized markings IAW **Table 4.3** **(T-3)**.

4.12.1.5.1. **(Added-AFRC)** MAJCOM authorized markings may be retained if the gaining unit WG/CC agrees. Transfer the insignia or marking approval package, when applicable, to the gaining unit if the insignia or marking is not removed **(T-2)**.

4.13. **(Added-AFRC)** Mid-Interval Over-Coating Frequencies.

4.13.1. **(Added-AFRC)** Aircraft Structural Maintenance (ASM) personnel are responsible for the scoring of aircraft paint systems and determining when to accomplish the scuff-sand and overcoat within the mid-life cycle IAW TO 1-1-8, Chapter 8 **(T-2)**.

4.13.1.1. **(Added-433AW)** Paint scoring shall be accomplished during isochronal inspection IAW Technical Order (TO) 1C-5M-23, *Maintenance System Peculiar Corrosion Control* and TO 1C-5M-6, *Scheduled Inspection and Maintenance Requirements*.

4.13.2. **(Added-AFRC)** Use the locally developed paint scoring system (Refer to **paragraph 4.1.7.6**) and/or the MDS specific TOs to determine priority for repaint **(T-2)**. Repaint schedules will be established with consideration for Programmed Depot Maintenance (PDM) cycles, but coating conditions determined by ASM will take precedence **(T-2)**.

4.13.3. **(Added-AFRC)** The aircraft shall be washed prior to paint scoring **(T-3)**.

4.14. **(Added-AFRC)** Competition Aircraft.

4.14.1. **(Added-AFRC)** Units participating in official competitions shall follow the guidelines established in the competition rules **(T-2)**.

4.15. **(Added-AFRC)** Anniversary Markings.

4.15.1. **(Added-AFRC)** Anniversary Markings. This policy is provided to allow latitude for application of anniversary markings to one wing assigned aircraft. All proposed anniversary markings will be reviewed and approved by the appropriate NAF/A4 and HQ AFRC/A4M prior to application on aircraft **(T-2)**. Anniversary markings will not violate MDS specific aircraft paint scheme requirements per MDS TO, nor interfere with required

aircraft markings, nor apply markings greater than 25% of the total exterior surface **(T-2)**. Anniversary Markings are allowed for one year from the date the marking(s) is approved **(T-2)**. Submit digital renderings of markings to HQ AFRC/A4MS (**afrc.a4ms@us.af.mil**) for review, coordination, and file.

Table 4.1. (Added-AFRC) Standard Aircraft Markings.

Marking	Description	Aircraft Requirement	Notes
National Star Insignia		Mandatory on all AFRC aircraft.	See MDS specific guidance for placement.
American Flag Marking		Per TO 1-1-8, Chapter 8 and MDS specific guidance.	See MDS specific guidance for placement.
"United States Of America" Marking	"UNITED STATES OF AMERICA"	Per TO 1-1-8, Chapter 8 and MDS specific guidance.	See MDS specific guidance for placement.
"US Air Force" Marking	U.S. AIR FORCE	Per TO 1-1-8, Chapter 8 and MDS specific guidance.	See MDS specific guidance for placement.
Aircraft Radio Call Number	Per TO 1-1-8, Chapter 8	Mandatory on all aircraft. See MDS specific guidance and/or **Attachment 3** for positioning.	See MDS specific guidance for placement.
Aircraft Serial Number	e.g. "62-3467"	Per TO 1-1-8, Chapter 8 and MDS specific guidance.	See MDS specific guidance for placement.
Propeller Markings	4 inch or 6 inch wide stripe at propeller tip	Per TO 1-1-8, Chapter 8 and/or MDS/engine/propeller specific TO.	See specific engine/propeller TO for placement.
Jettisonable Aircraft Components (e.g. Ejection seat, External Fuel tank)	e.g. aircraft radio call number, item serial number	Per TO 1-1-8, Chapter 8 and MDS specific guidance.	See MDS specific guidance for placement.

Table 4.2. (Added-AFRC) MAJCOM Directed Markings.

Marking	Description	Aircraft Requirement	Notes

Distinctive Unit Identifier	Two digit code located on tail of combat aircraft (e.g. LA, BD, TX)	Per TO specific guidance and **Attachment 3**	Refer to paragraph **4.1.3.**
Unit Designator	e.g. "433 AW" located on nose of Mobility / Strategic Airlift Aircraft	Per TO specific guidance and **Attachment 3**	See MDS specific guidance for placement.
Associate Unit Designator	e.g. "999 AW" located on nose of Mobility / Strategic Airlift Aircraft	Per TO specific guidance and **Attachment 3**	See MDS specific guidance for placement.
"AFRC" Command Marking	**AFRC**	Per **Attachment 3**	See MDS specific guidance for placement.
USAF Wing Marking	**"USAF"** applied to lower left wing, upper right wing	See MDS specific guidance for placement.	See MDS specific guidance for placement.
Crew Names	e.g. "Lt Col James Doolittle", "MSgt James Smith"	See paragraph **4.3**	See paragraph **4.3.**
Station Numbers	e.g. "9016"	Per MDS specific guidance and **Attachment 3**	See MDS specific guidance for placement.

Table 4.3. (Added-AFRC) MAJCOM Authorized Markings.

Marking	Description	Aircraft Requirement	Notes
Outstanding Unit Award Marking		Per TO 1-1-8, Chapter 8.	Apply in matte finish. WG/CC determines placement on aircraft IAW local supplement.
Aircraft Names	"Spirit of", "City of" or "… Aircraft of" marking (e.g. "Thunderbolt of Ann Arbor")	Per TO 1-1-8, Chapter 8. See paragraph **4.11** for additional guidance	
Tail Stripes	Distinguishing colored horizontal	Applied per MDS specific guidance and	See paragraph **4.2.10.**

	stripe	**Attachment 3**	
Mission Activity, Crew Accomplishment, Esprit de Corps Insignia and Markings	E.g. “Nose art”, ladder door art, “Let’s Roll”, etc.	Per WG/CC IAW local supplement.	Per WG/CC IAW local supplement.
Conspicuity Markings	e.g. Modular Airborne Fire Fighting Systems (MAFFS) aircraft	Per **Attachment 3**	Wing will provide a copy of local supplement to this instruction outlining placement of MAFFS markings to HQ AFRC/A4MS (afrc.a4ms@us.af.mil)
AFRC Insignia		Per **Attachment 3**	Subdued or matte finish.
Wing/Squadron Insignia		Per **Attachment 3**	Subdued or matte finish.

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Commander

(433AW)

TERRY W. MCCLAIN, Colonel, USAF
Commander, 433D Airlift Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

(Added-433AW) AFI 21-101_AFRCSUP_433AWSUP, *Aircraft and Equipment Maintenance Management*, 7 February 2022

(Added-433AW) AFI 21-101-AFRCSUP, *Aircraft and Equipment Maintenance Management,* 13 August 2020

(Added-433AW) AFI 33-322, *Records Management and Information Governance Program,* 23 March 2020

(Added-AFRC) AFI 33-360, *Publications and Forms Management*, 01 December 2015

(Added-AFRC) AFI 36-2710, *Equal Opportunity Program*, 18 June 2020

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10 USC § 2228, *Office of Corrosion Policy and Oversight,* 28 January 2008

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TO 1-1-686, *Desert Storage Preservation and Process Manual for Aircraft, Aircraft Engines, and Aircraft Auxiliary Power Unit Engines,* 9 April 2019

TO 1-1-691, *Aircraft Weapon Systems Cleaning and Corrosion Control,* 8 November 2019

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TO 1-1-700, *Corrosion Prevention and Control for Ground Communications Equipment*, 9 June 2018

(Added-433AW) TO 1C-5M-23, *Maintenance System Peculiar Corrosion Control,* 4 April 2022

(Added-433AW) TO 1C-5M-6, *Scheduled Inspection and Maintenance Requirements,* 24 March 2021

TO 32-1-101, *Use and Care of Hand Tools and Measuring Tools,* 14 September 2019

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TO 34-1-3, *Technical Manual Inspection and Maintenance of Machinery and Shop Equipment,* 23 August 2019

TO 34W4-1-5, *Operator Manual Welding Theory and Application,* 18 April 2015

TO 34-1-10, *Fundamentals of Ordnance Corps Machine Tools,* 22 April 2016

TO 35-1-3, *Corrosion Prevention, Painting and Marking of USAF Support Equipment,* 2 December 2019

AFI 62-601, *USAF Airworthiness,* 11 June 2010

(Added-433AW) DAFI 63-140_AFRCSUP, *Aircraft Structural Integrity Program and Air and Space Equipment Structural Management*, 4 February 2021

(Added-433AW) DAFMAN 90-161, *Publishing Processes and Procedures,* 15 April 2022

Prescribed Forms

None

Adopted Forms

(**Added-AFRC**) AF Form 1768, Staff Summary Sheet

(**Added-AFRC**) AFTO Form 781A, Maintenance Discrepancy and Work Document

Air Force Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

(Added-AFRC) ACC—Air Combat Command

(Added-433AW) AF—Air Force

AFI—Air Force Instruction

AFMC—Air Force Materiel Command

AFPD—Air Force Policy Directive

(Added-AFRC) AFRC—Air Force Reserve Command

(Added-433AW) AFRCSUP—Air Force Reserve Command Supplement

(Added-AFRC) AOR—Area of Responsibility

(Added-AFRC) ASM—Aircraft Structural Maintenance

(Added-433AW) AW—Airlift Wing

(Added-433AW) AWSUP—Airlift Wing Supplement

(Added-AFRC) CALCM—Conventional Air-Launched Cruise Missile

(Added-433AW) DAFI—Department of Air Force Instruction

(Added-433AW) DCC—Dedicated Crew Chief

(Added-433AW) IAW—In Accordance With

(Added-AFRC) JA—Judge Advocate

MAJCOM—Major Command

(Added-AFRC) MDS—Mission Design Series

MIL-HDBK—Military Handbook

(Added-433AW) MIL-PRF—Military-Performance

MIL-STD—Military Standard

(Added-433AW) MXG—Maintenance Group

(Added-433AW) MXG/CC—Maintenance Group Commander

(Added-AFRC) NAF—Numbered Air Force

(Added-AFRC) OG/CC—Operations Group Commander

(Added-433AW) OPR—Office of Primary Responsibility

(Added-AFRC) PA—Public Affairs

(Added-AFRC) PDM—Programmed Depot Maintenance

SAF—Secretariat Offices within the Headquarters Air Force

(Added-AFRC) SPD—System Program Director

(Added-AFRC) SQ/CC—Squadron Commander

TO—Technical Order

USC—United States Code

(Added-AFRC) WG/CC—Wing Commander

Terms

Airworthiness—The property of an air system configuration to safely attain, sustain, and complete flight in accordance with approved usage limits. (AFI 62-601, *USAF Airworthiness*).

Middle Tier of Acquisition pathway—The Middle Tier of Acquisition pathway is for capabilities that have a level of maturity to allow them to be rapidly prototyped within an acquisition program or fielded within 5 years of Middle Tier of Acquisition program start. The Middle Tier of Acquisition pathway may be used to accelerate capability maturation before transitioning to another acquisition pathway or may be used to minimally develop a capability before rapid fielding. See DoDI 5000.80, *Operation of the Middle Tier of Acquisition.*

(Added-AFRC) 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.

Structural Disciplines—For the purpose of this instruction, the term "structural disciplines" refers to advanced composites, corrosion prevention and control, low observables supportability, metals technology, and nondestructive inspection.

Tailoring—The manner in which certain core issues (program definition, program structure, program design, program assessments, and periodic reporting) are addressed in a particular program. The Milestone Decision Authority (MDA) seeks to minimize the time it takes to satisfy an identified need consistent with common sense, sound business management practice, applicable laws and regulations, and the time sensitive nature of the requirement itself. Tailoring may be applied to various aspects of the acquisition process, including program documentation, acquisition phases, the time and scope of decision reviews, Supportability Analysis, and decisions levels consistent with all applicable statutory requirements.

Attachment 2

AIR FORCE STRUCTURAL MANAGEMENT TECHNICAL ORDERS (TO)

Table A2.1. Air Force Structural Management Technical Orders (TO).

TO 00-25-224 *Welding High Pressure and Cryogenic Systems*
TO 00-25-252 *Aeronautical Equipment Welding*
TO 1-1-8 *Application and Removal of Organic Coatings, Air and Space and Non-Air and Space Equipment*
TO 1-1A-1 *General Manual for Structural Repair*
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 1-1-690 *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 1-1-700 *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 *Non-Destructive Inspection 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*
TO 34-1-10 *Fundamentals of Ordnance Corps Machine Tools*
TO 35-1-3 *Corrosion Prevention, Painting and Marking of USAF Support Equipment*
Note: Referenced In Paragraph 2.4.3.5.

Attachment 2 (AFRC)

NON-POWERED AGE PAINT SCORE SHEET

Table A2.1. (AFRC) Non-Powered AGE Paint Score Sheet.

Inspection Date		Inspected By	
Type Equipment		Equipment Field No.	
SCORING CRITERIA Refer to T.O 35-1-3, Table 3-2 for category description and action required. CAT 1, New Paint CAT 2, Minor Corrosion CAT 3, Moderate Corrosion CAT 4, Severe Corrosion			
STEP 1: Rate from 1 to 4 (4 being the worse) the condition of paint coating(s) for each inspected area.			
HANDRAILS	PLATFORM	BASE	TOWBAR
STAIRCASE	STAIRRAILS	TOWKICK	Block not used
OTHER (Specify)			
STEP 2: Sum all numbers from STEP 1			
STEP 3: Enter number of areas inspected			
STEP 4: Divide STEP 2 number by STEP 3 number			
STEP 5: Using the Scoring Criteria, Enter Category (CAT) 1.0-1.9=CAT 1 | 2.0-2.9=CAT 2 | 3.0-3.9=CAT 3 | 4.0-5.0=CAT 4			

Notes:

Attachment 3 (Added-AFRC)

POWERED AGE PAINT SCORE SHEET

Table A3.1. (AFRC) Powered AGE Paint Score Sheet.

Inspection Date		Inspected By	
Type Equipment		Equipment Field No.	
SCORING CRITERIA Refer to T.O 35-1-3, Table 3-2 for category description and action required. CAT 1, New Paint CAT 2, Minor Corrosion CAT 3, Moderate Corrosion CAT 4, Severe Corrosion			
STEP 1: Rate from 1 to 4 (4 being the worse) the condition of paint coating(s) for each inspected area.			
TOP	BOTTOM	LEFT	RIGHT
FRONT	BACK	TOWBAR	INSIDE
OTHER (SPECIFY)			
STEP 2: Sum all numbers from STEP 1			
STEP 3: Enter number of areas inspected			
STEP 4: Divide STEP 2 number by STEP 3 number			
STEP 5: Using the Scoring Criteria, Enter Category (CAT) 1.0-1.9=CAT 1 | 2.0-2.9=CAT 2 | 3.0-3.9=CAT 3 | 4.0-5.0=CAT 4			

Notes:

Attachment 4 (Added-AFRC)

WEAPONS SYSTEM SPECIFIC MARKINGS

A4.1. (AFRC) The following tables provide specific guidance for marking AFRC owned aircraft. These tables are in addition to requirements outlined in TO 1-1-8, SPD approved aircraft drawings, General TOs and MDS specific TOs, and this instruction. All optional markings left to WG/CCs discretion will be identified in a local supplement to this instruction to ensure uniformity **(T-2)**.

Table A4.1. (AFRC) AFRC A-10 Markings.

Note: Refer to TO 1A-10C-23 and Drawing 8539016 for aircraft specific marking placement.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
Jettisonable Aircraft Components (e.g. Ejection seat, External Fuel tank)	Per TO 1-1-8, Chapter 8 and/or MDS specific TO	Per TO 1-1-8, Chapter 8 and/or MDS specific TO	Per TO 1-1-8, Chapter 8 and/or MDS specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Distinctive Unit Identifier	Apply to outboard sides of vertical stabilizers. Lower edge 3 inches above radio call number, centered on vertical stabilizer	12 inches	37038
"AFRC" Command Marking	Apply to outboard side of left and right engine nacelle doors. Center on doors and run parallel with the nacelle	9 inches	37038
Crew Names (Optional)	Pilot: Left under windscreen beginning at FS 188.92 Crew Chief: Under pilot's name Assistant Crew Chief: Under Crew Chief name **Note**: All names applied parallel to water line	1 3/4 inches	37038
MAJCOM Authorized Markings			

Marking	Guidance and Location	Size	Color/Finish
Outstanding Unit Award **(Optional)**	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location selected by the WG/CC	Maximum 12 inches in length with a size ratio of 4:1	Matte Finish
Tail Stripes **(Optional)**	Units may apply color to upper portion of inboard and outboard sides of both vertical stabilizer caps. **Note:** Units may apply paint/decals within the border of the tail stripe (not to exceed the color portion of the tail stripe)	Per WG/CC IAW local supplement (Do not exceed dimension of vertical stabilizer cap)	Per WG/CC IAW local supplement
Wing/Squadron Insignia **(Optional)**	Units may apply an 18 inch wing/squadron insignia. Apply wing insignia to the forward fuselage on right side above panel F-79, and aft of panel F-105. Apply squadron insignia to the forward fuselage on the left side above panel F-18, and aft of panel F-44. **Note:** Units without a squadron insignia apply the wing insignia to both sides	18 inches	Subdued or matte finish
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.2. (AFRC) AFRC B-52 Markings.

Note: Refer to TO 1B-52-8 for aircraft specific marking placement.
Standard Aircraft Markings

Marking	Guidance and Location	Size	Color/Finish
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
Jettisonable Aircraft Components (e.g. Ejection seat, External Fuel tank)	Per TO 1-1-8, Chapter 8 and/or MDS specific TO	Per TO 1-1-8, Chapter 8 and/or MDS specific TO	Per TO 1-1-8, Chapter 8 and/or MDS specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Distinctive 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 below box antenna. The training edge of the first letter is in a vertical line from the tip of the command insignia	42-inches	37038
"AFRC" Command Marking	Apply to both sides of the vertical stabilizer, top of the letters are 41.5-inches below the tail stripe. Center "AFRC" marking on the vertical stabilizer	18-inches	37038
Crew Names (Optional)	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	Style and size of letters are unit option, but, will not exceed 3 inches in height	37038
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Outstanding Unit Award (Optional)	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location	Maximum 12 inches in length with a size ratio of	Matte Finish

	selected by the WG/CC	4:1	
Tail Stripe **(Optional)**	Apply to both sides of upper portion of vertical stabilizer. Must form a straight line. **Note:** Units may apply paint/decals within the border of the tail stripe (not to exceed the color portion of the tail stripe)	Per WG/CC IAW local supplement (Do not exceed 15 inches)	Per WG/CC IAW local supplement
Wing/Squadron Insignia **(Optional)**	Left side fuselage: center of insignia at BS 218.7 and WL 187.5 Right side fuselage: center of insignia at BS 218.7 and WL 187.5	24 inches	Subdued
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.3. (AFRC) AFRC C-5 Markings.

Note: Refer to Drawing 201211892/201211891 and TO 1C-5A/M-23 for aircraft specific marking placement.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
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

"AFRC" Command Marking	Apply to both sides of vertical stabilizer. Apply centered on stabilizer with top of letters 12.0 inches below US flag	18 inches	37038
Crew Names (Optional)	Apply crew names to left side of fuselage with top forward corner of letters 6 inches down and aft of lower aft corner of crew entry door	1 3/4 inches	37038
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Outstanding Unit Award (Optional)	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location selected by the WG/CC	Maximum 12 inches in length with a size ratio of 4:1	Matte Finish
Tail Stripe color fill (Optional)	Units may paint/apply decals within the borders of vertical tail band stripes.	Per WG/CC IAW local supplement (Not to extend into/beyond top or bottom 2 inch vertical tail band stripes)	Per WG/CC IAW local supplement
AFRC Insignia	Apply to both sides of the fuselage. 12 inches aft and centered vertically on the crew entry door	34-inches	Matte or subdued
Wing Insignia (Optional)	Insignia will be 4 inches aft of AFRC insignia. The tops edges of both patches must align horizontally.	34 inches	Matte or subdued
"AIR FORCE RESERVE COMMAND" Marking (Optional)	Apply centered on bottom of visor, 17 inches forward of visor trailing edge	10 inches	37038
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement

Markings			
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.4. (AFRC) AFRC C-17 Markings.

Note: Refer to TO 1C-17A-23 and Drawing 17P9B3402 for aircraft specific marking placement.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
"AFRC" Command Marking	Apply to both sides of vertical stabilizer. Bottom of letters located 12 inches above top edge of top tail band stripe, centered on invisible line intersecting center of United States flag	18-inches	37038
Crew Names (Optional)	Apply to left side of fuselage only. Apply top forward corner of letters 6 inches down and aft of crew entry door lower aft corner	1 ¾ inches	37038
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Wing Insignia (Optional)	Insignia will be 17.5 inches aft of AFRC insignia. The tops edges of both patches must align horizontally.	34 inches	37038
Outstanding Unit Award (Optional)	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location	Maximum 12 inches in length with a size ratio of	Matte Finish

	selected by the WG/CC	4:1	
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.5. (AFRC) AFRC HC-130 Markings.

Note: Refer to Drawing 93104893 for aircraft specific marking placement.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
"AFRC" Command Marking	Apply to both sides of vertical stabilizer. Apply marking centered horizontally with top of marking at VSS 142	12 inches	Contrasting gray
Aircraft wheel assembly (NLG and MLG)	Wheels (both NLG and MLG) will be painted black to align with subdued paint scheme	N/A	37038
Propeller Markings	4 inch or 6 inch wide stripe at propeller tip	Per TO 1-1-8, Chapter 8 and/or MDS/engine/propeller specific TO	Per TO 1-1-8, Chapter 8 and/or MDS/engine/propeller specific TO
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**

Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.6. (AFRC) AFRC C-130 Markings.

Note: Refer to Drawing 9144700 for aircraft specific marking placement.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
Propeller Markings	4 inch or 6 inch wide stripe at propeller tip	Per TO 1-1-8, Chapter 8 and/or MDS/engine/propeller specific TO	Per TO 1-1-8, Chapter 8 and/or MDS/engine/propeller specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Associate Unit Designator	Apply to both sides of fuselage. Apply top edge of marking 1 inch below bottom edge of unit designator, centered	6 inches	37038
"AFRC" Command Marking	Apply to both sides of vertical stabilizer. Apply marking 10 inches below bottom edge of US flag, centered under flag	12 inches	37038
Crew Names (Optional)	Apply to left side of fuselage only. Apply horizontally between FS 175 and 210, vertically with bottom of names/crew block on WL 175	1 ¾ inches	37038

MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Outstanding Unit Award **(Optional)**	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location selected by the WG/CC	Maximum 12 inches in length with a size ratio of 4:1	Matte Finish
Tail Stripe color fill	Units may paint/apply decals within the borders of vertical tail band stripes	Per WG/CC IAW local supplement (Not to extend into/beyond top or bottom 2 inch vertical tail band stripes)	Per WG/CC IAW local supplement
AFRC Insignia	Apply to both sides of fuselage. Apply insignia centered on FS 257 with bottom edge of insignia resting on WL 196	24 inches	37038
Associate Command Insignia **(If applicable)**	Apply to both sides of fuselage. Apply insignia centered on FS 286 with bottom edge of insignia resting on WL 196	24 inches	37038
Wing Insignia **(Optional)**	For non-associate units, insignia will be 4 inches aft of AFRC insignia	24 inches	37038
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.7. (AFRC) AFRC C-130H MAFFS Conspicuity Markings.

Note 1: This table applies to assigned 302 AW MAFFS aircraft only **Note 2: These markings are to be applied in addition to those identified in Drawing 9144700 and above in Table A3.6.** **Note 3: Refer to TO 1C-130H-2-90JG-10-1 for additional information on MAFFS markings**			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Fuselage MAFFS Number	Apply to both sides of fuselage: Apply number marking with top edge resting on WL 200, aft edge resting on FS 397 (WG/CC approved font will be identified in local supplement)	46 inches wide by 60 inches tall	12197
Vertical Stabilizer MAFFS Number	Apply to both sides of vertical stabilizer: Apply number marking with top forward corner resting on VSS 75, forward edge of marking resting on FS 1041.5 (WG/CC approved font will be identified in local supplement)	46 inches wide by 60 inches tall	12197
Center Wing Box MAFFS Number	Apply to top of center wing box: Apply number marking with top edge resting on FS 517, centered on BL 0 (WG/CC approved font will be identified in local supplement)	46 inches wide by 60 inches tall	12197
Wing Tip MAFFS Marking	Apply to left and right outer wing tip leading edges: Apply block marking centered on leading edge extending to top and bottom side of wing surface with outboard edge of marking resting on inboard edge of de-ice block (WG/CC approved marking design will be identified in local supplement)	24 inches wide by 48 inches tall	12197
Horizontal Stabilizer MAFFS Marking	Apply to left and right horizontal stabilizer tip leading edges: Apply block marking centered on leading edge extending to top and bottom side of stabilizer surface with outboard edge of marking resting on horizontal stabilizer station 296 (WG/CC approved marking design will be identified in local supplement)	24 inches wide by 48 inches tall	12197
Vertical Stabilizer	Apply to both sides of vertical stabilizer: Apply block marking centered on	24 inches wide by 48	12197

MAFFS Marking	leading edge extending to both sides of vertical stabilizer surface with bottom edge of marking resting on vertical stabilizer station 16.7 (WG/CC approved marking design will be identified in local supplement)	inches tall	

Table A4.8. (AFRC) AFRC WC/C-130J Markings.

Note: Refer to Drawing 201122423 for aircraft specific markings.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
Propeller Markings	4 inch or 6 inch wide stripe at propeller tip	Per TO 1-1-8, Chapter 8 and/or MDS/engine/ propeller specific TO	Per TO 1-1-8, Chapter 8 and/or MDS/engine/propeller specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Associate Unit Designator	Apply to both sides of fuselage. Apply top edge of marking 1 inch below bottom edge of unit designator	6 inches	37038
"AFRC" Command Marking	Apply to both sides of vertical stabilizer. Apply marking 10 inches below bottom edge of US flag, centered under flag	12 inches	37038
Crew Names (Optional)	Apply to left side of fuselage only. Apply horizontally between FS 175 and 210, vertically with bottom of names/crew block on WL 175	1 ¾ inches	37038
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Outstanding Unit Award (Optional)	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location	Maximum 12 inches in length with a size ratio of	Matte Finish

	selected by the WG/CC	4:1	
Tail Stripe color fill	Units may paint/apply decals within the borders of vertical tail band stripes	Per WG/CC IAW local supplement (Not to extend into/beyond top or bottom 2 inch vertical tail band stripes)	Per WG/CC IAW local supplement
AFRC Insignia	Apply to both sides of fuselage. Apply insignia centered on FS 257 with bottom edge of insignia resting on WL 196	24 inches	37038
Associate Command Insignia (If applicable)	Apply to both sides of fuselage. Apply insignia centered on FS 286 with bottom edge of insignia resting on WL 196	24 inches	37038
Wing Insignia (Optional)	For non-associate units, insignia will be 4 inches aft of AFRC insignia	24 inches	37038
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.9. (AFRC) AFRC KC-135 Markings.

Note: Refer to TO 1C-135-3-8 for aircraft specific markings.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO

MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Unit Designator	Apply to both sides of fuselage. Apply top of marking 6 inches below station number	6 inches	37038
Associate Unit Designator	Apply to both sides of fuselage. Apply top of marking 6 inches below bottom edge of unit designator, centered	6 inches	37038
"AFRC" Command Marking	Apply to both sides of vertical stabilizer. Apply marking centered under US flag on WL 435	12 inches	37038
Crew Names (Optional)	Apply to left side of fuselage only. Apply 6 inches below command insignia, centered	1 ¾ inches	37038
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Outstanding Unit Award (Optional)	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location selected by the WG/CC	Maximum 12 inches in length with a size ratio of 4:1	Matte Finish
Tail Stripe color fill	Units may paint/apply decals within the borders of vertical tail band stripes	Per WG/CC IAW local supplement (Not to extend into/beyond top or bottom 2 inch vertical tail band stripes)	Per WG/CC IAW local supplement
AFRC Insignia	Apply to both sides of fuselage. Left: Apply insignia 16 inches aft of crew entry door. Top side of insignia placed 6 inches below US AIR FORCE marking. Right: Apply insignia at BS 524. Top side of insignia placed 6 inches below US AIR FORCE marking.	34 inches	37038
Associate	Apply to both sides of fuselage. Apply	34 inches	37038

Command Insignia (If applicable)	insignia 15 inches aft of AFRC insignia. Top edges of insignia align		
Wing Insignia (Optional)	For non-associate units, insignia will be 15 inches aft of AFRC insignia. For associate units, the wing insignia will be 15 inches aft of the Associate Command Insignia	34 inches	37038
Boom **Ruddevators**	**UE without associate**: Looking down from boom pod: Center numeric designator (e.g. 434, 459, 507, or 940) on left side. Center alpha designator on right side (e.g. ARW). Looking up and forward from ground: Center numeric designator on left side. Center alpha designator on right side. **UE with associate**: Looking down from boom pod: Center UE designator on left side. (Center Associate designator on right side. (Looking up and forward from ground: Center UE designator on left side. Center Associate designator on right side.	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.10. (AFRC) AFRC F-16 Markings.

Note: Refer to TO 1F-16C-2-00GV-00-1 for aircraft specific markings.
Standard Aircraft Markings

Marking	Guidance and Location	Size	Color/Finish
Aircraft Serial Number	IAW MDS specific TO	IAW MDS Specific TO	IAW MDS specific TO
Jettisonable Aircraft Components (e.g. Ejection seat, External Fuel tank)	Per TO 1-1-8, Chapter 8 and/or MDS specific TO	Per TO 1-1-8, Chapter 8 and/or MDS specific TO	Per TO 1-1-8, Chapter 8 and/or MDS specific TO
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Distinctive Unit Identifier	Apply to both sides of the vertical stabilizer. Locate vertically with bottom of identifier at WL 158. Locate first letter of identifier horizontally at FS 482.07.	18 inches	36118
"AFRC" Command Marking	Apply to both sides of fuselage centered between trailing edge flaperon and leading edge of horizontal stabilizer. Apply marking parallel with ground.	6 inches	36118
Crew Names (Optional)	Pilot: apply to left side canopy rail Crew chief: apply to right side canopy rail Assistant crew chief: apply to inside of nose landing gear door	1 ¾ inches	Contrasting gray
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Outstanding Unit Award (Optional)	Units may apply marking that replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage in a suitable location selected by the WG/CC	Maximum 12 inches in length with a size ratio of 4:1	Matte Finish
Tail Stripe (Optional)	Units may paint a colored horizontal stripe to both sides of vertical tail	Per WG/CC IAW local supplement (Do not exceed 9 inches in height)	Per WG/CC IAW local supplement

Tail Stripe color fill	Units may paint/apply decals within the borders of vertical tail band stripes	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
AFRC Command Insignia (Optional)	Apply insignia on right side of forward fuselage. Locate top of insignia 11 inches below fuselage/intake splitter vane and horizontally with leading edge 52 inches aft of intake duct lip	10 inches	Matte or Subdued
Wing/Squadron Insignia (Optional)	Apply insignia on left side of forward fuselage. Locate top of insignia 11 inches below fuselage/intake splitter vane and horizontally with leading edge 52 inches aft of intake duct lip	10 inches	Matte or Subdued
Unit Marking (Optional)	Units may apply marking (steer head, shark, etc.) to both sides of vertical stabilizer. Apply marking centered between the top of unit identifier and bottom of tail stripe (WG/CC approves design of marking)	Per WG/CC IAW local supplement	Contrasting gray
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.11. (AFRC) AFRC HH-60 Markings.

Note: Refer to TO 1H-60(H)G-23 and Sikorsky drawing number 70005-00155 for aircraft specific markings.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
Rotor/Rotor Blade	Per TO 1-1-8, Chapter 8 and/or MDS	Per TO 1-1-	Per TO 1-1-8,

Markings	specific TO	8, Chapter 8 and/or MDS specific TO	Chapter 8 and/or MDS specific TO
Jettisonable Aircraft Components (e.g. Ejection seat, External Fuel tank)	N/A	N/A	N/A
MAJCOM Directed Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Distinctive Unit Identifier	Apply to both sides of vertical stabilizer. Left: Centered, 21.5 inches below WL 319.633 Right: Centered, 19 inches below WL 319.633	9 inches	37038
"AFRC" Command Marking	Apply to both sides of boom at FS 536 and WL 230	6 inches	37038
Crew Names (Optional)	Pilot: Right door, centered, 2.5. inches below window Co-pilot: Left door, centered, 2.5 inches below window Crew chief/assistant: Right cargo door, centered, 3 inches below forward window	1 3/4 inches	37038
Station Number	Apply to nose of aircraft. Centered, 12 inches below intake screen	6 inches	37038
MAJCOM Authorized Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Tail Stripe	Units may paint a colored horizontal stripe to both sides of vertical tail	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Tail Stripe color fill	Units may paint/apply decals within the borders of vertical tail band stripes	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Wing/Squadron/Unit Insignia (Optional)	Wing: Apply to right cargo door: Centered, 8 inches below forward window	10 inches	37038

	Squadron: Apply to left cargo door: Centered, 8 inches below forward window		
Mission Activity, Crew Accomplishment, Esprit De Corps Insignia or Markings	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Aircraft Name	Per Approved Request	Per Approved Request	Submit to HQ AFRC/A4MS (afrc.a4ms@us.af.mil) for processing to AF/CV for approval

Table A4.12. (AFRC) AFRC KC-46 Markings.

Note: Refer to TO 1C-46-3-8 and TO 1-1-8 for guidance.			
Standard Aircraft Markings			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Aircraft Serial Number	IAW MDS specific TO	IAW MDS specific TO	IAW MDS specific TO
MAJCOM and Unit Markings **HQ AFRC will retain the authority of all KC-46 paint/coating finishes, insignias, and markings where specific MAJCOM authority is stated in TO 1-1-8. Application of any MAJCOM or Unit Marking and Insignia upon any AFRC assigned or possessed KC-46 aircraft must be approved by the HQ AFRC/A4 Director. (T-2)**			
Marking	**Guidance and Location**	**Size**	**Color/Finish**
Unit Designator	Apply to both sides of fuselage. Submit propose location to AFRC/A4 for approval.	6 inches	37038
Associate Unit Designator	Apply to both sides of fuselage. Apply top of marking 6 inches below bottom edge of unit designator, centered	6 inches	37038

"AFRC" Command Marking	Apply to both sides of vertical stabilizer. Submit propose location to AFRC/A4 for approval.	12 inches	37038
Crew Names (Optional)	Apply to left side of fuselage only. Apply 6 inches below command insignia, centered	1 ¾ inches	37038
Outstanding Unit Award (Optional)	Replicates the "Air Force Outstanding Unit Award" ribbon on the sides of the aircraft fuselage. Submit propose location to AFRC/A4 for approval.	Maximum 12 inches in length with a size ratio of 4:1	Matte Finish
Tail Stripe color fill	Submit design package to AFRC/A4 for approval	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
AFRC Insignia	Apply to both sides of fuselage. Submit propose location to AFRC/A4 for approval	34 inches	37038
Associate Command Insignia (If applicable)	Apply to both sides of fuselage. Apply insignia 15 inches aft of AFRC insignia. Top edges of insignia align	34 inches	37038
Wing Insignia (Optional)	15 inches aft of the Associate Command Insignia	34 inches	37038
Boom Ruddevators	Looking down from boom pod: Center numeric designator on left side. Center alpha designator on right side. Looking up and forward from ground: Center numeric designator on left side. Center alpha designator on right side.	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Mission Activity, Crew Accomplishment,	Submit design package to AFRC/A4 for approval.	Per WG/CC IAW local supplement	Per WG/CC IAW local supplement
Esprit De Corps Marking, Nose Art	Submit design package to AFRC/A4 for approval.	Not to exceed 36" x 36"	Per WG/CC IAW local supplement
Aircraft Name	Submit through chain of command per TO	Per WG/CC	Per WG/CC

	1-1-8 Chapter 8 for approval.	IAW local supplement	IAW local supplement

Attachment 4 (433AW)

WEAPONS SYSTEM SPECIFIC MARKINGS

A4.2. (433AW) Reference for Application of C-5 Markings

A4.2.1. **(Added-433AW)** Texas Flag Tail Banner.

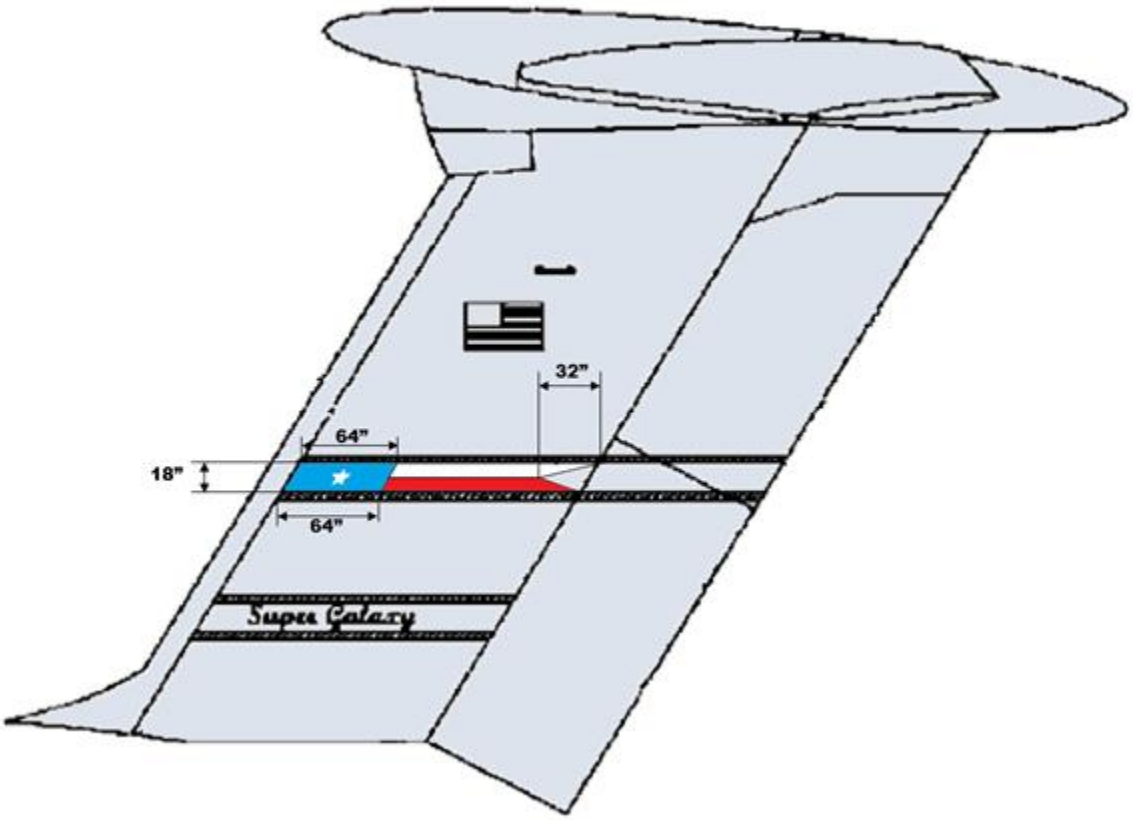
A4.2.1.1. **(Added-433AW)** White shall be aircraft grade white 220 vinyl or Military-Performance (MIL-PRF)-85285 polyurethane paint, 17925 white. Note: View shown in **Figure A4.2.1** is for reference only. Some markings have been omitted and picture does not show to scale. Note: View shown below illustrates marking for LEFT side; banner dimensions for RIGHT side are mirrored but not shown.

A4.2.1.2. **(Added-433AW)** Red shall be aircraft grade ruby red 220 vinyl or MIL-PRF-85285 polyurethane paint, 11136 red.

A4.2.1.3. **(Added-433AW)** Blue shall be aircraft grade cobalt blue 220 vinyl or MIL-PRF-85285 polyurethane paint, 15044 blue. Note: All T-Tail markings must be located in accordance with DAFI 63-140_AFRCSUP and TO 1C-5M-23.

A4.2.1.4. **(Added-433AW)** The Star for Texas flag banner shall be colored WHITE per the above color codes and centered on BLUE flag field. The star shape shall also be skewed at an angle to match the forward and aft edges of the BLUE flag field. Star dimensions shall be 12” x 12”.

Figure A4.1. (433AW) Texas Flag Tail Banner.



A4.2.2. **(Added-433AW)** Reference for application of Nose Art, Aircraft Name, and Outstanding Unit Award Markings (See **Figure A4.2**)

A4.2.2.1. **(Added-433AW)** All 433AW aircraft marking guidance listed below must be used in accordance with DAFI 63-140_AFRCSUP, TO 1-1-8, and TO 1C-5M-23.

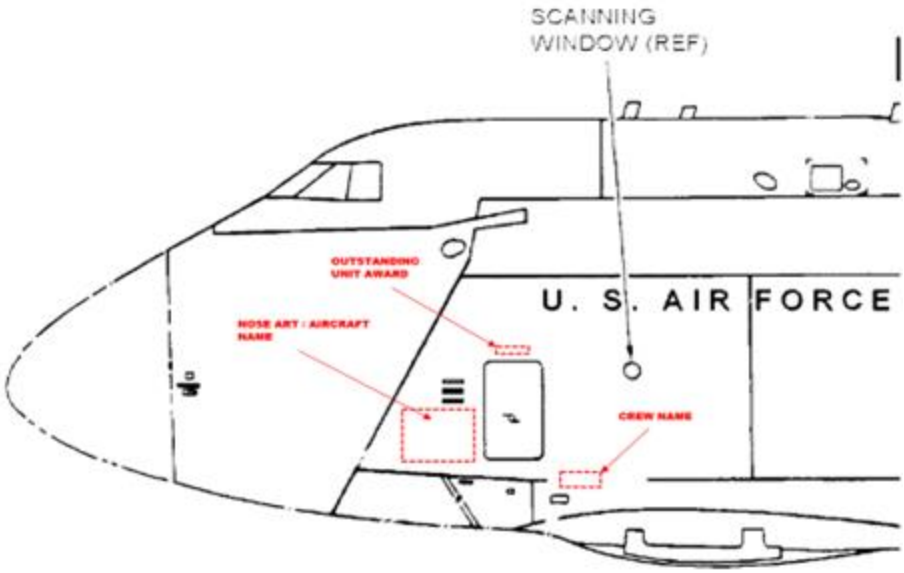
A4.2.2.2. **(Added-433AW)** AIRCRAFT/NOSE ART: Shall be located on forward left side of the fuselage, centered below the "433AW" unit marking with a minimum space of 6" between the "433AW" unit marking and the nose art.

A4.2.2.3. **(Added-433AW)** AIRCRAFT NAME (when authorized): Shall be located on forward left side of the fuselage, centered below the "433AW" unit marking. Shall be located immediately below (or incorporated into) the Nose Art. Aircraft Name may be split for brevity if multiple words are used, with part of the name placed both above and below the Nose Art. If part of the name is placed above the Nose Art, it shall be placed with a minimum space of 6" between the "433AW" unit marking and the aircraft name.

A4.2.2.4. **(Added-433AW)** OUTSTANDING UNIT AWARD: Shall be located on forward left side of fuselage, centered above the crew entry door with a size ratio of 4:1. Shall be no greater than 12" in length with Matte finish.

A4.2.2.5. **(Added-433AW)** CREW NAME: Shall be located on the forward left side of the fuselage. Top forward corner of Crew Name shall be 6" below and 6" aft of bottom aft corner of crew entry door. Font shall be legible and letters will be 1.75". Color shall be 37038 Black in flat or Matte finish.

Figure A4.2. (433AW) Reference for Application of Aircraft Nose Art and Name (XX-XXXX).



A4.2.2.6. **(Added-433AW)** Both the aircraft name and the nose art shall be aircraft grade flat black 220 vinyl or MIL-PRF-85285 polyurethane paint, flat black in color.

A4.2.2.6.1. **(Added-433AW)** NOSE ART: Flat black Alamo silhouette, 26.5" in width, 16.5" in height.

A4.2.2.6.2. **(Added-433AW)** AIRCRAFT NAME: "THE CITY OF SAN ANTONIO" flat black, 6.5" lettering placed around the Nose Art and centered as shown in the colorized image below. **NOTE** Font used for vinyl decal lettering is "Fette Engschrift D". If vinyl decal software or specified font style is unavailable, a reasonably similar font style may be used.

Figure A4.3. (433AW) Aircraft Name.

A4.2.2.7. **(Added-433AW)** Reference for Application of AFRC Visor Decal

A4.2.2.7.1. **(Added-433AW)** Required Equipment.

Tape Measure
4' Level / Straight Edge
Chalk Line
Marking Chalk
Transfer Tape
Masking Tape
10" Vinyl Decal Letters, Military Block Font, Flat Black Color

NOTE

IT IS RECOMMENDED BUT NOT REQUIRED THAT THE VISOR BE IN THE OPEN POSITION.

A4.2.2.7.2. **(Added-433AW)** Layout.

Mark the base line 6” forward of the antenna base using a level and chalk line or masking tape; extend the base line across the visor from one side to the other.

A4.2.2.7.3. **(Added-433AW)** Using the antenna base as a reference, mark a vertical line traveling forward up the visor from the base line, centered on the antenna; this will be the alignment line.

A4.2.2.7.4. **(Added-433AW)** Starting with the word “RESERVE”, place the spine/back part of the second ‘R’ on the previously marked alignment line with the ‘feet’ of the “R” place on the base line.

Figure A4.4. (433AW) Aircraft Visor Decal Center Marking.

A4.2.2.7.5. **(Added-433AW)** Continue to apply the remaining letters/words using the word “RESERVE”

as a reference; the bottom of all words/letters should be placed on the base line.

“LETTER SPACING: 1 ¼”
“WORD SPACING: 7”

A4.2.2.8. **(Added-433AW)** Reference for application of AFRC Visor Decal

Figure A4.5. (433AW) Aircraft Visor Decal.