Audit Report

OFFICE OF THE INSPECTOR GENERAL

AIR FORCE AIRCRAFT PAINTING AND CORROSION CONTROL

Report No. 96-062 January 24, 1996

Department of Defense

Additional Copies

To obtain additional copies of this audit report, contact the Secondary Reports Distribution Unit of the Analysis, Planning, and Technical Support Directorate at (703) 604-8937 (DSN 664-8937) or FAX (703) 604-8932.

Suggestions for Future Audits

To suggest ideas for or to request future audits, contact the Planning and Coordination Branch of the Analysis, Planning, and Technical Support Directorate at (703) 604-8939 (DSN 664-8939) or FAX (703) 604-8932. Ideas and requests can also be mailed to:

Inspector General, Department of Defense
OAIG-AUD (ATTN: APTS Audit Suggestions)
400 Army Navy Drive (Room 801)
Arlington, Virginia 22202-2884

Defense Hotline

To report fraud, waste, or abuse, contact the Defense Hotline by calling (800) 424-9098; by sending an electronic message to Hotline@DODIG.OSD.MIL; or by writing the Defense Hotline, The Pentagon, Washington, D.C. 20301-1900. The identity of each writer and caller is fully protected.

Acronyms

AFB	Air Force Base
AFMC	Air Force Materiel Command
MAC	Military Airlift Command

INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884

January 24, 1995

MEMORANDUM FOR ASSISTANT SECRETARY OF THE AIR FORCE
(FINANCIAL MANAGEMENT AND COMPTROLLER)

SUBJECT: Audit Report on Air Force Aircraft Painting and Corrosion Control
(Report No. 96-062)

We are providing this report for your review and comment. This report is the last Air Force report in a series of reports that resulted from our DoD-wide Audit of Aircraft Paint Application and Removal Capabilities. We considered management comments on a draft of this report in preparing the final report.

DoD Directive 7650.3 requires that all recommendations and potential monetary benefits be resolved promptly. We request that the Air Force provide additional comments on the recommendations by March 25, 1996.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Mr. John Gannon, Audit Program Director, at (703) 604-9427 (DSN 664-9427) or Mr. Gerald Montoya, Acting Audit Project Manager, at (703) 604-9430 DSN (664-9430). If management requests, we will provide a formal briefing on the audit results. See Appendix E for the report distribution.

David K. Steensma

David K. Steensma
Deputy Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 96-062 **January 24, 1996**
(Project No. 4LB-0027)

Air Force Aircraft Painting and Corrosion Control

Executive Summary

Introduction. This report summarizes our audit of Air Force aircraft corrosion control with emphasis on aircraft painting and paint removal. It is the final Air Force report in a series of reports that resulted from our DoD-wide Audit of Aircraft Paint Application and Removal Capabilities. Other reports resulting from audit discussed the repainting of the C-5 aircraft and construction of a plastic media blasting facility at Laughlin Air Force Base, Texas. The Air Force spends approximately $1 billion a year on its aircraft corrosion control program. Corrosion control costs include both corrosion repair and preventive corrosion maintenance.

Audit Objectives. The audit objectives were to evaluate the economy and efficiency of aircraft painting and paint removal and the development of new technologies for painting and removing paint from aircraft. However, during the audit, we limited our review to costly inefficiencies in the Air Force aircraft corrosion control program, which included aircraft painting and paint removal. We also evaluated the adequacy of the Air Force management control program as it applied to the primary audit objectives.

Audit Results. Air Force major commands were painting aircraft primarily to improve aircraft appearance rather than to control and prevent corrosion. As a result, major commands incurred unnecessary expenses to paint 38 percent of 377 fighter and training aircraft more frequently than was needed. They were also acquiring additional painting capacity even though existing Air Force facilities were not used to maximum capacity. The Air Force can reduce costs $16.1 million over the 6-year Future Years Defense Program by reducing the frequency with which aircraft are painted. Additional savings may be realized through better utilization of existing painting facilities and by discontinuing the acquisition of new and unnecessary aircraft paint facilities. See Part I for a discussion of the audit results and Appendix C for a summary of the potential benefits resulting from the audit. We identified a material weakness related to the frequency of aircraft painting and acquisition of aircraft painting facilities (Appendix A).

Summary of Recommendations. We recommend that the Air Force reprogram funds for aircraft painting to other more pressing needs, direct a review of major command policies to ensure conformance with existing Air Force policy, place a moratorium on establishment of additional paint stripping and repainting facilities, make use of existing

paint stripping and painting capacity before establishment of new capabilities, issue guidance to change aircraft painting cycles, and cancel plans for solicitation and award of a contract for stripping and painting of fighter aircraft.

Management Comments. The Air Force disagreed with the recommendation to reprogram funds for aircraft painting. It stated that differences should be resolved before reprogramming of funds is considered. The Air Force agreed with revising command painting policies, and initiated an Air Force-wide review of major command procedures. The Air Force concurred with the intent of, but did not agree to a complete, moratorium on additional corrosion control facilities for stripping and painting because consideration should be given to facilities that predate Environmental Protection Agency requirements. The Air Force planned to advise its commands of factors to consider before initiating new painting and stripping facilities. The Air Force agreed to optimize use of existing painting facilities before pursuing contract support when it is more efficient to use organic resources. The Air Force plans to continue contracting for painting services when it is more cost-effective for the Air Force to do so. The Air Force disagreed with issuing guidance to change aircraft paint cycles stating that its paint cycles are for planning purposes only. See Part I for a summary of management comments, and Part III for the complete text of management comments.

Audit Response. The Air Force comments are partially responsive, however, the Air Force needs to take aggressive action to eliminate unnecessary painting of its aircraft. The Air Force is unwilling to change its paint cycles because it claims that its paint cycles are for planning purposes only, however, its position is not supported by actual field practices. We request that the Air Force reconsider its position on the unresolved recommendations and provide additional comments in response to the final report by March 25, 1996.

Table of Contents

Executive Summary i

Part I - Audit Results

Audit Background 2
Audit Objectives 2
Aircraft Painting and Corrosion Control Facilities 3

Part II - Additional Information

Appendix A. Scope and Methodology
Scope 14
Management Control Programs 15
Appendix B. Prior Audits and Other Reviews 17
Appendix C. Summary of Potential Benefits Resulting From Audit 19
Appendix D. Organizations Visited or Contacted 20
Appendix E. Report Distribution 21

Part III - Management Comments

Department of the Air Force Comments 25

Part I - Audit Results

Audit Background

This report summarizes our audit of Air Force aircraft corrosion control with emphasis on aircraft painting and paint removal. It is the last Air Force report in a series of reports resulting from our DoD-wide Audit of Aircraft Paint Application and Removal Capabilities (Project No. 4LB-0027). Other reports resulting from audit discussed the repainting of the C-5 aircraft and construction of a plastic media blasting facility at Laughlin Air Force Base (AFB), Texas. The Air Force spends approximately $1 billion a year on its aircraft corrosion control program. Corrosion control costs include both corrosion repair costs and preventive corrosion maintenance costs. The metal exteriors of all Air Force aircraft require surface protection from the effects of corrosion. The Air Force uses paint as the primary means to prevent corrosion. In addition to protective finishes, regularly scheduled surface washing and cleaning will minimize corrosion.

To control corrosion, an Air Force technical order requires the complete removal of paint and repainting aircraft in intervals ranging from 6 years for fighter aircraft to 13 years for large transport aircraft. Maintenance personnel remove paint and protective coatings before repainting to accommodate structural inspection and to reduce weight. Additionally, each aircraft receives maintenance painting consisting of scuff sanding the surface of the aircraft and then repainting the entire aircraft. Maintenance painting is done in intervals ranging from 2 years for fighter aircraft to 6 years for other aircraft. Paint plans for most aircraft follow a predetermined paint cycle. In addition to the scheduled full paints, touch-ups in the field protect exposed metal from corrosion until the aircraft is due for its next complete paint cycle.

Audit Objective

The objectives of this audit were to evaluate the economy and efficiency of aircraft painting and paint removal and the development of new technologies for painting and removing of paint from aircraft. We did not pursue the portion of the audit objective related to new technologies for painting and paint removal. Instead, we limited our review to inefficiencies in the Air Force aircraft corrosion control program, which includes aircraft painting and paint removal. We also evaluated the adequacy of the Air Force management control programs it applied to the primary audit objectives. See Appendix A for a discussion of the scope, methodology, and management control programs, and Appendix B for a summary of prior audit coverage related to the audit objectives.

Aircraft Painting and Corrosion Control Facilities

Air Force major commands were painting aircraft primarily to improve aircraft appearance rather than to control and prevent corrosion. The condition occurred because Air Force major commands did not follow Air Force guidance, and issued conflicting guidance that stressed aircraft painting for appearance rather than corrosion control. As a result, major commands were incurring unnecessary expenses to paint aircraft more frequently than was needed, and were acquiring additional painting facilities even though existing Air Force facilities were not being used to maximum capacity. The Air Force can eliminate $16.1 million of costs over the 6-year Future Years Defense Program by reducing the frequency that aircraft are painted in accordance with established guidance. The Air Force may realize additional benefits through better use of existing painting facilities and by discontinuing the acquisition of new and unnecessary aircraft paint facilities.

Air Force Aircraft Paint Policy

Air Force Regulation. Air Force Regulation 66-34, "Painting and Marking Aircraft, Missiles, Drones, and Aircraft Alternative Mission Equipment Exteriors," section A, November 20, 1987, states that Air Force air vehicles are painted for corrosion protection, camouflage, and survivability. Painting and repainting aircraft solely for cosmetic purposes is not permitted. However, all Air Force units are responsible to prudently maintain good aircraft appearance as an inherent part of a well-managed corrosion-control program to the extent that facilities and resources permit. Repeated complete painting of aircraft resulting in the buildup of excessive paint layers is not an effective or permissible method of maintaining an appropriate professional appearance. Responsibility rests with the major air command to prevent abuse of this policy.

Air Force Technical Manual. Air Force Technical Order 1-1-4, "Exterior Finishes, Insignia, and Markings Applicable to United States Air Force Aircraft," March 21, 1978, section 2-2, states that all Air Force aircraft will be painted as a prime means of corrosion protection and prevention. Inherent in this policy is the responsibility to preserve a professional paint appearance as an integral part of a well-managed corrosion-control program. The requirement to paint, however, must be tempered with good judgment and in consideration of available funds. The intent is that programs not be established for the prompt painting of aircraft. Aircraft should be scheduled for painting with due regard for other scheduled maintenance and funding. Further, aircraft determined to have a sound paint system already applied will not be repainted solely to incorporate color, improve appearance, or make material changes to the standard paint system.

Aircraft will be painted in accordance with a service life plan to preserve paint coating integrity, unless there is an overriding operational requirement. A coordinated paint and repaint plan is developed and kept current for each aircraft. The plan may be based on an inspection and evaluation procedure, calendar time and severity zone criteria, or other approved technique. As a part of the paint plan, aircraft are periodically stripped to inspect the exterior metal for corrosion and structural damage. The average life of paint coating before the need for strip and repaint is 6 years for unsheltered aircraft with a flat paint finish, and 8 years for aircraft with a high gloss paint finish. Maintenance painting, which involves scuff sanding the surface of the aircraft and completely repainting the aircraft, is recommended at the mid-life point of 3 years for flat paint finishes and 4 years for high gloss paint finishes.

Nonessential Aircraft Painting

Air Force major commands were painting aircraft primarily to improve aircraft appearance rather than to control and prevent corrosion. Based on our review of 377 fighter and training aircraft assigned to the Air Combat Command and the Air Education and Training Command, 142 (38 percent) were painted unnecessarily. Additionally, we reported in Inspector General, DoD, Report No. 94-198, "Quick-Reaction Report on Repainting of the C-5 Aircraft," September 29, 1994, that the Air Mobility Command was planning to paint 127 C-5 transport aircraft unnecessarily (see Appendix B for details).

Air Combat Command Fighter Aircraft. A review of maintenance records and physical inspections of 83 F-15 fighter aircraft stationed at Seymour Johnson AFB, revealed that 44 (53 percent) had been painted 2 or 3 times although those aircraft needed to be painted only once during a 3-year period. In our opinion, the remaining 39 aircraft that we visually inspected using Air Force technical guidance and accompanied by Air Force maintenance personnel, also appeared to have been painted more frequently than was necessary. Because maintenance records were incomplete, we could not verify the frequency of painting. Although our review focused on aircraft at Seymour Johnson AFB, maintenance records of 50 aircraft reviewed at Langley AFB showed that 15 aircraft (30 percent) were painted more frequently during a 3-year period than was necessary. We also reviewed aircraft assigned to Nellis AFB, but records were insufficient to show the paint history of the aircraft.

Air Education and Training Command Training Aircraft. Our review of maintenance records and physical inspections of 130 T-37 training aircraft stationed at Randolph AFB and Laughlin AFB revealed that 24 (19 percent) had been painted 2 or 3 times although those aircraft needed to be painted only once during a 3-year period.

In addition, a review of 114 T-38 training aircraft assigned to Randolph AFB and Laughlin AFB revealed that 59 (52 percent) had been painted 2 or 3 times although the aircraft needed to be painted only once during the 3-year period.

A review of maintenance records for 104 T-1 training aircraft did not disclose frequent painting because the T-1 aircraft are new to the Air Education and Training Command's inventory. However, in the future, the aircraft will be subjected to Air Education and Training Command's paint policies and procedures.

Air Mobility Command Air Transport Aircraft. In March 1991, the Air Mobility Command implemented a program, estimated at a cost of $152 million, to improve the appearance of 127 C-5 aircraft. The program was to change color schemes of the aircraft from camouflage to gray. The Air Mobility Command claimed that the C-5 aircraft fleet paint condition had deteriorated after the Persian Gulf war; however, inspection records revealed that none of the C-5 aircraft met the criteria for repainting. In Report No. 94-198, we recommended that the Air Mobility Command cancel plans to accelerate the painting of its C-5 aircraft and paint only in conjunction with scheduled program depot maintenance. Doing so would reduce costs by $59.1 million. Subsequently, the Air Force discontinued unneeded painting of C-5 aircraft (see Appendix B).

Guidance and Emphasis on Aircraft Appearance

Air Force major commands did not follow Air Force guidance, because the Air Force major commands issued guidance that conflicts with the Air Force technical order and that stresses aircraft painting for appearance reasons rather than corrosion control.

Air Combat Command Guidance. On April 30, 1993, Headquarters, Air Combat Command, issued Air Combat Regulation 66-11, "Corrosion Control Program," instructing its field units to paint fighter aircraft every 2 years. Before April 30, 1993, an earlier version of the regulation required aircraft to be repainted every 18 months. However, both versions of the regulation conflict with Air Force Technical Order 1-1-4, which recommends an aircraft repainting cycle of 3 years. The recommended 3-year repainting cycle in Technical Order 1-1-4 is based on the expected paint life of 6 years for flat paint with a complete repainting at the mid-life point of 3 years.

Following a 2-Year Paint Cycle. Although the Air Combat Command had established a 2-year paint cycle for its aircraft, field units were not always following command policy. Some aircraft were repainted twice in a 5-month period, and others 3 times in an 18-month period. Repeated painting of aircraft, resulting in a buildup of excessive paint layers, is not an effective or permissible method of maintaining a professional appearance according to Technical Order 1-1-4.

Air Education and Training Command Paint Policy. The Air Education and Training Command issued policy guidance which conflicts with Technical Order 1-1-4. In 1991, the Air Education and Training Command began stripping and repainting its entire fleet of 1,000 T-37 and T-38 training aircraft.

By September 1993, the Air Education and Training Command had painted more than 700 of those aircraft. According to the Air Education and Training Command, the entire fleet of aircraft were being stripped and repainted in preparation to implement a fleetwide 6-year strip and repaint policy for each aircraft and to improve the appearance of the aircraft.

In May 1993, the Air Education and Training Command issued a memorandum to officially implement a 6-year strip and repaint policy for its aircraft effective October 1, 1993. Every 6 years, each aircraft will be stripped completely and repainted. The Air Education and Training Command's policy also requires a complete repaint at the 6-year mid-life point of 3 years. As a result, each training aircraft is painted every 3 years. However, this policy conflicts with Air Force Technical Order 1-1-4, which recommends an aircraft repainting cycle of 4 years. A 4-year repainting cycle recommended in Technical Order 1-1-4 is based on the expected paint life of 8 years for aircraft such as T-37 and T-38 with high gloss paint. Technical Order 1-1-4 recommends a complete repaint of aircraft at the mid-life point of 4 years.

Air Mobility Command Policy Guidance. The Air Mobility Command's decision to repaint its C-5 fleet to improve the appearance of the aircraft, as part of the then Proud MAC Image Program, was not in conformance with Air Force policy. Although the aircraft was painted camouflage (gray and green), the Air Force believed that a neutral color (gray) would improve the image of the aircraft as it performed its global missions. However, the decision to repaint the aircraft to improve appearance contradicted the policy on painting aircraft contained in Air Force Regulation 66-34 and Air Force Technical Order 1-1-4. The guidance forbids repainting aircraft solely to improve appearance.

Cost of Nonessential Aircraft Painting

Major air commands were incurring unnecessary expenses to paint aircraft more frequently than was needed.

Air Combat Command's 2-Year Aircraft Paint Cycle. By following a 2-year aircraft repainting cycle rather than the recommended 3-year paint cycle, the Air Combat Command was incurring unnecessary expenses to paint aircraft more often than was needed. Under the Air Combat Command's 2-year aircraft paint policy, each fighter aircraft will be painted a minimum of 3 times during the 6-year period. Each aircraft would be painted twice at field level and once at depot during 6 years. In our opinion, painting aircraft every 2 years is not cost-effective. We project that the Air Combat Command can reduce costs by $11.4 million over the 6-Year Future Years Defense Program by extending its paint cycle from 2 to the recommended 3 years. Painting aircraft every 3 years complies with Air Force policy that aircraft are painted for corrosion protection, camouflage, and survivability. A 3-year paint cycle also satisfies a major command's desires to maintain a professional appearance.

Air Education and Training Command's 3-Year Aircraft Paint Cycle. By following a 3-year aircraft repainting cycle rather than the recommended 4-year paint cycle, the Air Education and Training Command was also incurring unnecessary expenses to paint aircraft more often than was needed. Based on the Air Education and Training Command's 3-year aircraft paint policy, each training aircraft will be painted a minimum of twice during a 6-year period. In our opinion, painting aircraft every 3 years is not cost-effective. Based on Air Force Technical Order 1-1-4, the 3-year paint cycle can be extended to every 4 years without impacting corrosion control and prevention. Based on our projections, the Air Education and Training Command can save $4.7 million over the 6-Year Future Years Defense Program by changing its paint cycle from 3 to 4 years. Painting aircraft every 4 years complies with Air Force policy that aircraft are painted for corrosion protection, camouflage, and survivability. A 4-year paint cycle also satisfies a major command's desires to maintain a professional appearance.

Air Mobility Command's Accelerated Repainting. As of September 1994, the Air Mobility Command was planning to spend $112.1 million to repaint 92 C-5 aircraft. Painting the aircraft in accordance with the aircraft service interval would reduce the need to repaint from 92 aircraft to 48 aircraft, at a cost of $52.8 million. Accelerating the schedule for repainting each C-5 aircraft will cause the Air Force to incur unnecessary costs of $59.3 million over the 6-year Future Years Defense Program (see Appendix B for details).

Additional Impacts of Nonessential Aircraft Painting

In addition to incurring unnecessary expenses to paint aircraft more frequently than necessary, major commands were acquiring additional unneeded painting capacity and constructing new unneeded facilities.

Air Combat Command Expanding Capabilities. The Air Combat Command was acquiring additional aircraft painting capacity although existing aircraft painting and paint removal facilities were underused. The Air Combat Command was planning to contract with a commercial vendor for additional capacity to strip and paint 100 fighter aircraft annually, at an estimated annual cost of $7 million. The contract, if awarded, would include the stripping and repainting of A-10, F-15, F-16, and T-38 aircraft that are assigned to Air Combat Command units. The contract, if awarded would adversely impact an already underused capacity at the five Air Force maintenance depots because a majority of the aircraft would have gone to the depots for maintenance.

Excess Depot Capacity. The Air Force Materiel Command (AFMC) completed a study entitled, "AFMC Process Assessment," March 1995. The study reviewed all aircraft repair processes, and included an overall assessment of facility capacity and utilization for aircraft painting and paint removal. The study focused on aircraft maintenance and repair operations at technical repair centers that are located at one of five air logistics centers. The study determined that paint removal capacity utilization was 38 percent and painting

capacity utilization was 48 percent at the five air logistics centers. Nonetheless, the Air Combat Command was planning to award a contract to a commercial vendor in September 1995. Should the Air Combat Command award a contract, the work load at the five Air Force maintenance depots would further decrease.

Air Education and Training Command Constructing Unneeded Facilities. The Air Education and Training Command was planning to construct a plastic media blasting facility and purchase equipment at Laughlin AFB to strip paint from aircraft even though facilities and equipment already existed at other Air Education and Training Command facilities to accommodate the paint stripping work load. We recommended in Report No. 95-183, "Construction of a Plastic Media Blasting Facility, Laughlin Air Force Base, Texas," May 3, 1995, that the Air Force cancel the planned construction. The Air Force agreed to cancel the $2.9 million construction project (see Appendix B).

Air Mobility Command Contractor Support. The painting of each C-5 aircraft ahead of its repainting service interval caused the Air Force to seek unnecessarily an alternative source to repaint the C-5 fleet. Although the Air Force has revised its accelerated schedule, it was planning to use contractor facilities to accommodate the unnecessary work load. On September 30, 1992, the Air Force entered into a contract with Chrysler Technologies Airborne Systems to repaint the C-5. The initial contract provided for the repainting of 15 aircraft. The contract contained options to paint additional aircraft at the option of the Government. The Air Force estimated that it would use Chrysler to repaint 65 of the C-5 aircraft by the end of FY 1997. We recommended that the Air Force paint only C-5 aircraft that required repainting, which would eliminate the need for contractor support, because the Air Force could accommodate the work load in its existing facilities.

Air Force Materiel Command Construction of Facilities. In 1994, AFMC completed construction of an unneeded 47,250-square foot aircraft corrosion control facility at Edwards AFB for its large aircraft, at a cost of $11.9 million. Although construction of the facility was justified for use as a corrosion control facility for large aircraft, its utility to perform corrosion control was questionable, and the planned work load was insufficient to warrant the expenditure. We believe that the only underlying need for the facility is to perform cosmetic painting of aircraft.

The state-of-the-art facility at Edwards AFB was built to accommodate large aircraft, including the C-135, C-141, and EC-18. Air Force records indicated that the facility was built to provide painting and corrosion control of its aircraft. However, as of May 1995, the facility was not being used for its intended purpose. A year after the completion of construction, no large aircraft had been painted in the facility. Although the facility was built to accommodate large aircraft and perform corrosion control, large aircraft assigned to Edwards AFB were continuing to receive corrosion control maintenance during depot visits. Further, the facility was strictly a painting facility. The facility did not

have the capability to strip paint from aircraft to perform corrosion control. Some minor stripping of parts can be performed, but not large sections of an aircraft.

The condition existed because AFMC overstated requirements for the facility; and some of the planned work load for the facility did not materialize after the facility was constructed. In its justification for the facility, AFMC claimed that if corrosion control could not be provided at Edwards AFB, serious mission degradation would result because aircraft would be forced to centralize Air Force servicing depots and contractor facilities outside California. AFMC further claimed that relying on Air Force and contractor facilities overburdened its maintenance schedule, causing mission delays and cancellations. AFMC also justified the construction of the facility as a result of a Defense Commission on Base Closure and Realignment action to relocate the 4950th Test Wing aircraft from Wright-Patterson AFB to Edwards AFB in April 1993. According to the Commission report, 27 aircraft were to be relocated to Edwards AFB, including C-135; C-141; and EC-18 aircraft. However, the work load did not fully materialize because the facility that was built would not accommodate a C-141, and seven of the aircraft that were to be relocated were retired shortly after arrival at Edwards AFB. That resulted in fewer aircraft to be supported by the facility.

As of May 1995, the facility at Edwards AFB was to support only 19 large aircraft. The small number of aircraft did not justify the construction of such an elaborate facility. Further, the facility's capability to completely remove paint from aircraft was nonexistent, therefore, corrosion control could not be performed. During our May 1995 visit to Edwards AFB, work load had not been scheduled for the facility and its future was uncertain. According to AFMC officials, the facility will be used to perform cosmetic touch-up of aircraft. Further, command personnel were planning to offer to paint aircraft assigned to other Air Force major commands.

The intended use of the Edwards AFB facility for corrosion control purposes was not apparent in the facility's design. The facility was an exclusive painting facility. Corrosion control procedures could not be performed there. The lack of paint removal capabilities for corrosion control, and the insufficient work load to support the facility indicated that the facility's use was strictly for cosmetic painting of large aircraft.

Recommendations, Management Comments, and Audit Response

1. We recommend that the Assistant Secretary of the Air Force (Financial Management and Comptroller) reprogram $16.1 million of Operations and Maintenance funds identified for stripping and repainting aircraft to other more pressing Air Force needs.

Management Comments. The Air Force nonconcurred stating that differences should be resolved between the Inspector General, DoD, and the Air Force before reprogramming of funds is considered. Should the Air Force eventually agree that its painting of aircraft is excessive, it would recommend internal reprogramming within the Air Combat Command and the Air Education and Training Command to cover unfunded requirements.

Audit Response. We agree that any differences should be resolved between the Inspector General, DoD, and the Air Force before reprogramming of funds is considered. We will make available to the Air Force documentation showing excessive painting at major commands. Internal reprogramming within the Air Force to cover unfunded requirements will satisfy the intent of our recommendation as long as there is a decrease in the funding for aircraft painting at major commands. We request that the Air Force reconsider its position and provide additional comments in response to the final report.

2. We recommend that the Air Force Deputy Chief of Staff (Logistics):

a. Direct major air commands to revise their painting policies to ensure that command policies conform to existing Air Force policy.

Management Comments. The Air Force concurred with the recommendation, stating that it has initiated an Air Force-wide review of major command procedures to ensure major command guidance conforms to existing Air Force policy. The review is to be completed by December 30, 1995. Additionally, the Air Force will request the Inspector General, DoD, to provide technical assistance to the Aircraft Coating Technology Screening Committee, which is reviewing the issues and plans to be completed by February 1, 1996.

Audit Response. We request that the Air Force provide results of its actions upon completion of its review. We will provide the assistance when requested.

b. Place a moratorium on the establishment of additional corrosion control facilities for aircraft paint stripping and repainting.

Management Comments. The Air Force concurred with the intent of the recommendation. It agreed that requests for construction of new facilities should be examined closer to ensure that existing facilities are considered before additional facilities are approved. The Air Force stated that the environmental impact must be considered for facilities that predate Environmental Protection Agency requirements. The Air Force will advise major commands to consider those factors before finalizing plans to construct additional corrosion control facilities.

Audit Response. We accept the Air Force response and request a copy of Air Force guidance advising major commands to examine existing facilities and environmental considerations before approving construction of new facilities.

c. Direct major air commands to make use of excess capacity at existing Air Force corrosion control facilities before awarding contracts for additional corrosion control capacity or before constructing new corrosion control facilities.

Management Comments. The Air Force concurred with the recommendation, stating that it will encourage major commands to optimize existing Air Force facilities before pursuing contract support especially when it is more efficient to use organic resources. The Air Force also stated that it plans to continue contracting for services when it is more cost-effective for the Air Force to do so.

3. We recommend that the Commander, Air Combat Command:

a. Change the command's aircraft painting cycle from a 2-year cycle to a 3-year cycle and notify field maintenance personnel of the new aircraft paint cycle.

Air Force Comments. The Air Force nonconcurred with the recommendation, stating that there is no requirement for fighter aircraft to be repainted at no less than the 3-year point. The Air Force stated that the 3-year mid-life repaint cycle referred to in Technical Order 1-1-4 and the 2-year repaint cycle referred to in Air Combat Regulation 66-11 do not require fighter aircraft to be repainted at those intervals but are guides for planning purposes. Field units are mandated only to maintain the aircraft coating system integrity for corrosion protection and appearance. As an alternative action to those specified in established regulations, the Air Force is writing draft Air Combat Command Instruction 21-105, specifying that aircraft will receive a new paint job no earlier than every 2 years and no later than 3 years.

Audit Response. We disagree with the Air Force comments. The Air Force interpretation of its regulation that there is no requirement for fighter aircraft to be repainted in cycles of less than 3 years is misleading and not supported by the actual field practices. Our review of field units showed that the average fighter aircraft is completely repainted every 16 months. The frequency at which aircraft is painted has little to do with corrosion protection and prevention, but is driven by appearance standards. As long as major commands continue to emphasize painting aircraft for appearance rather than for effective corrosion control and prevention, unneeded painting will occur. By basing its corrosion control program on broad criteria such as cosmetic appearance of aircraft, which is a subjective standard, the Air Force continues to allow program abuses identified in the audit to continue. The proposed draft instruction will basically establish an Air Force policy to allow cosmetic painting of its aircraft. Cosmetic painting of aircraft is a waste of limited maintenance dollars. We request that the Air Force reconsider its position in response to the final report.

b. Cancel plans for soliciting and awarding contracts for stripping and painting fighter aircraft.

Management Comments. The Air Force nonconcurred with the recommendation, stating that cost and production rates at Air Logistics Centers resulted in the decision to consider contracting depot level fighter painting. The Air Force stated that the capability to strip and repaint fighter aircraft at a lower cost than the Air Logistics Centers was demonstrated by the Air Combat Command Regional Corrosion Control Facility once located at Bergstrom AFB, Texas. The Air Force is evaluating whether painting and stripping of its fighter aircraft should be contracted out.

Audit Response. In response to the final report, we request that the Air Force provide adequate cost data to support its decision.

4. We recommend that the Commander, Air Education and Training Command, change the command's aircraft painting cycle from a 3-year paint cycle to a 4-year paint cycle and notify field maintenance personnel of the new aircraft paint cycle.

Management Comments. The Air Force nonconcurred with the recommendation, stating that current guidance requires field units to look at their aircraft semiannually and rank order them for painting based on corrosion protection, soundness of the coating system, and appearance. Its policy directs field units to plan to repaint aircraft every 3 years but does not direct field units to paint every aircraft every 3 years. If units determine aircraft have a sound paint system, they need not paint them.

Audit Response. The Air Force contention that its 36-month paint cycle is for planning purposes only and is not mandatory is misleading. A review of field unit practices showed no correlation between scheduled repaint dates for aircraft and any semiannual aircraft ranking. Aircraft are continuing to be scheduled for complete repainting on a cyclical basis rather than on the paint condition of the aircraft, as stated by the Air Force. Finally, if the Air Force believes that its 36-month repaint policy is for planning purposes only and does not affect field unit practices, then there should be no reluctance to changing its policy to a 4-year repaint cycle. We request that the Air Force reconsider its position and provide additional comments to the final report.

Part II - Additional Information

Appendix A. Scope and Methodology

Scope

We used nonstatistical sampling methods to select aircraft maintenance records for review at each of the Air Force major commands. Individual aircraft paint history was not consistently recorded in aircraft maintenance files. As a result, we relied on various sources of information from which to develop individual aircraft paint histories. In addition to maintenance history recorded on Air Force Technical Order Form 95, "Significant Maintenance History," we reviewed automated maintenance history records, production schedules, paint logs, and aircraft inspection records. Using Air Force technical guidance and the assistance of Air Force technical personnel, we supplemented our review of records by performing physical inspections of aircraft to determine the paint condition of aircraft and to obtain the date of the most recent paint removal and application, which was recorded on the fuselage of each aircraft. We did not pursue the portion of the audit objective related to new technologies for painting and paint removal. Instead, we limited our review to the Air Force aircraft corrosion control program, which includes aircraft painting and paint removal.

Aircraft Maintenance Histories. We reviewed the aircraft maintenance history records for the period January 1985 through May 1995, for aircraft assigned to the Air Combat Command, Air Education and Training Command, and Air Mobility Command to develop paint histories of aircraft.

Air Combat Command. As of April 1995, 587 F-15 and F-16 aircraft were assigned to Air Combat Command bases. We reviewed 189 maintenance histories of F-15 and F-16 aircraft assigned to Langley AFB, Nellis AFB, and Seymour Johnson AFB.

Air Education and Training Command. As of February 1995, there were 975 T-37 and T-38 training aircraft in the Air Education and Training Command active fleet. We reviewed the maintenance histories of 244 T-37 and T-38 training aircraft assigned to Laughlin AFB and Randolph AFB.

Air Mobility Command. We reviewed maintenance histories for 127 C-5 aircraft assigned to the Air Mobility Command (see Appendix B).

Calculation of Potential Monetary Benefits. At the Air Education and Training Command, we used inventory records for T-1, T-37, and T-38 training aircraft to calculate the number of aircraft that would be painted annually based on a 6-year and an 8-year paint cycle. At the Air Combat Command we used inventory records for F-15 and F-16 aircraft to project the number of aircraft that would be painted annually based on a 2-and 3-year paint cycle. The costs of paint removal, paint application, and repainting were provided by the Air Combat Command and Air Education and Training Command and were deemed sufficiently accurate for estimating purposes.

Use of Computer-Processed Data. We relied on computer-processed data contained in the Air Force Core Automated Maintenance System. Our review of system controls and the results of data tests showed an error rate that casts doubt on the validity of the data. However, when the data are reviewed in context with other available evidence, we believe the opinions, conclusions, and recommendations in this report are valid.

Audit Period, Standards, and Locations. We performed this economy and efficiency audit from February 1994 through June 1995 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. Accordingly, we included tests of management controls considered necessary. Appendix F lists the organizations we visited or contacted.

Management Control Program

DoD Directive 5010.38, "Internal Management Control Program," April 14, 1987, requires DoD organizations to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of the controls.

Scope of Review of Management Control Programs. The audit evaluated management controls related to the painting of aircraft at four Air Force major commands. Specifically, we examined the management control procedures for scheduling the painting of aircraft in accordance with applicable Air Force guidance, policies, and procedures. We did not assess the adequacy of management's self-evaluation of those controls because management did not identify its aircraft corrosion control program under one or more of its assessable units.

Adequacy of Management Controls. We identified a material management control weakness for the Air Combat Command, Air Education and Training Command, Air Mobility Command, and AFMC as defined by DoD Directive 5010.38. The management controls at those major commands were not adequate to ensure that aircraft were not painted unnecessarily, and to ensure that major commands were not acquiring or constructing new, unneeded painting facilities. Recommendations 2., 3., and 4., if implemented, will improve procedures for ensuring that aircraft are not painted unnecessarily and that major commands do not acquire additional new, unneeded painting facilities. We identified $16.1 million in potential monetary benefits associated with managements' implementation of the recommendations. See Appendix C for a summary of potential benefits resulting from the audit. A copy of the report will be provided to senior management officials responsible for management controls in the Air Combat Command, Air Education and Training Command, Air Mobility Command, and Air Materiel Command.

Adequacy of the Air Force Self-Evaluation. Air Force officials did not identify management and administration of aircraft painting as an assessable unit, and therefore, did not identify or report the material management control weaknesses identified by the audit.

Appendix B. Prior Audits and Other Reviews

During the last 5 years, the General Accounting Office and the Office of the Inspector General, DoD, each issued reports that specifically discussed the Air Force corrosion control programs.

General Accounting Office

On July 19, 1994, the General Accounting Office issued a letter, B-257911, to the Chairman, Subcommittee on Environment, Energy, and Natural Resources, Committee on Government Operations, House of Representatives. The letter indicated that the General Accounting Office had identified more than $24 million in potential reductions in the Air Force's FY 1995 programmed depot maintenance request. The General Accounting Office believed that the repaint requirements for the C-5 and C-141 aircraft were overstated by about $20.8 million and $3.5 million, respectively. The General Accounting Office made no recommendations in its letter.

Inspector General, DoD

Inspector General, DoD, issued Report No. 94-198, "Quick-Reaction Report on Repainting of the C-5 Aircraft," September 29, 1994. The report stated that the Air Force was repainting C-5 aircraft ahead of their repainting service intervals even though the aircraft did not need repainting. By repainting C-5 aircraft prematurely, the Air Force was incurring unnecessary costs of approximately $59.3 million over the 6-year Future Years Defense Program. The report recommended that the Air Force suspend the accelerated painting of C-5 aircraft and paint only those aircraft that qualified for repainting. The Air Force concurred with the finding and recommendation and discontinued unnecessary painting of the C-5 aircraft. However, the Air Force development of new C-5 aircraft repainting guidelines may continue to allow unnecessary painting of aircraft. A dialogue with Air Force officials to resolve that matter was ongoing as of January 1996.

Inspector General, DoD, issued Report No. 95-183, "Construction of a Plastic Media Blasting Facility, Laughlin Air Force Base, Texas," May 3, 1995. The report stated that the Air Force was planning to construct a plastic media blasting facility at Laughlin AFB to strip paint from aircraft even though existing Air Force facilities and equipment would accommodate the paint stripping work load. The report recommended that the Air Force terminate the planned construction of the plastic media blasting facility and acquisition of related equipment for Laughlin AFB; modify the paint stripping facility at Columbus AFB, Mississippi, to accommodate the T-1 aircraft; and discontinue plans to strip paint from F-15 and F-16 aircraft at field level. The Air Force concurred with the recommendations to terminate the planned construction of the plastic media blasting facility and acquisition of related equipment for Laughlin

AFB, and to modify the paint stripping facility at Columbus AFB to accommodate the T-1 aircraft. The Air Force partially concurred with the recommendation to discontinue plans to strip paint from F-15 and F-16 aircraft at the field level. It agreed to discontinue paint stripping of F-15, but stated that it plans to continue stripping and repainting of F-16 aircraft at field level because of the considerably less cost at the field level. In order to ensure that its decision is valid, the Air Force agreed to perform a study to validate costs associated with stripping and repainting F-16 aircraft. The study was completed in November 1995 and the results are to be provided to the Inspector General, DoD, by January 31, 1996.

Appendix C. Summary of Potential Benefits Resulting From Audit

Recommendation Reference	Description of Benefit	Amount and/or Type of Benefit
1.	Economy and Efficiency. Reprogram funds identified for stripping and repainting aircraft to more pressing Air Force needs.	Funds in the amount of $16.1 million put to better use in the Air Force Operation and Maintenance Account, 3400.
2.a.	Management Controls and Economy and Efficiency. Eliminates conflicts between the painting policies of major air commands and existing Air Force policy.	Nonmonetary.
2.b.	Management Controls and Economy and Efficiency. Eliminates duplicate and unnecessary corrosion control facilities.	Undeterminable. The amount of funds put to better use will be based on cost of not acquiring unnecessary or duplicative corrosion control facilities.
2.c.	Management Controls and Economy and Efficiency. Improves utilization of existing Air Force corrosion control facilities.	Benefits included in Recommendation 2.b.
3.b.	Management Controls and Economy and Efficiency. Precludes award of an unnecessary contract for stripping and painting of fighter aircraft.	Benefits included in Recommendation 2.b.
3.a., 4.	Management Controls and Economy and Efficiency. Extends aircraft painting cycles and eliminates unnecessary painting and associated costs.	Benefits included in Recommendation 1.

Appendix D. Organizations Visited or Contacted

Office of the Secretary of Defense

Deputy Under Secretary of Defense for Logistics, Washington, DC
Base Realignment and Closure Transition Office, Washington, DC

Department of the Army

U.S. Army Corps of Engineers, Los Angeles, CA

Department of the Air Force

Office of the Deputy Chief of Staff (Logistics), Washington, DC
Air Combat Command, Langley AFB, VA
  Nellis AFB, NV
  Seymour Johnson AFB, NC
Air Education and Training Command, Randolph AFB, TX
  Columbus AFB, MS
  Laughlin AFB, TX
  Luke AFB, AZ
  Sheppard AFB, TX
  Tyndall Air Force Base, FL
Air Force Materiel Command, Wright-Patterson AFB, OH
  Air Force Flight Test Center, Edwards AFB, CA
    412th Logistics Group, Edwards AFB, CA
  Ogden Air Logistics Center, Hill AFB, UT
  San Antonio Air Logistics Center, Kelly AFB, TX
  Warner Robins Air Logistics Center, Robins AFB, GA
Air Mobility Command, Scott AFB, IL

Contractors

Beech Aircraft, Wichita Falls, KS
Beech Aircraft, Columbus AFB, MS
Chrysler Airborne Systems, Waco TX
Lockheed-Georgia Company, Marietta, GA

Appendix E. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
  Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
  Deputy Chief Financial Officer
  Deputy Comptroller (Program/Budget)
Deputy Under Secretary of Defense for Logistics
Assistant to the Secretary of Defense (Public Affairs)
Base Realignment and Closure Transition Office

Department of the Army

Auditor General, Department of the Army

Department of the Navy

Auditor General, Department of the Navy

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Deputy Chief of Staff (Logistics)
Auditor General, Department of the Air Force
Commander, Air Combat Command
Commander, Air Education and Training Command
Commander, Air Force Materiel Command
Commander, Air Mobility Command
Commander, Ogden Air Logistics Center
Commander, San Antonio Air Logistics Center
Commander, Warner-Robins Air Logistics Center

Other Defense Organizations

Director, Defense Contract Audit Agency
Director, Defense Logistics Agency
Director, National Security Agency
  Inspector General, National Security Agency

Non-Defense Federal Organizations

Office of Management and Budget
General Accounting Office
- National Security and International Affairs Division
  - Technical Information Center
- Health, Education, and Human Services

Chairman and ranking minority member of each of the following congressional committees and subcommittees:
- Senate Committee on Appropriations
- Senate Subcommittee on Defense, Committee on Appropriations
- Senate Committee on Armed Services
- Senate Committee on Governmental Affairs
- House Committee on Appropriations
- House Subcommittee on National Security, Committee on Appropriations
- House Committee on Reform and Oversight
- House Subcommittee on National Security, International Affairs, and Criminal Justice, Committee on Government Reform and Oversight
- House Committee on National Security

Part III - Management Comments

Department of the Air Force Comments

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON DC

06 November 1995

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR AUDITING OFFICE OF THE INSPECTOR GENERAL DEPARTMENT OF DEFENSE

FROM: AF/LGM
1030 Air Force Pentagon
Washington DC 20330-1030

SUBJECT: Audit Report on Air Force Aircraft Painting and Corrosion Control (Project No 4LB-0027)

This is in reply to your memorandum requesting the Assistant Secretary of the Air Force (Financial Management and Comptroller) provide Air Force comments on the subject report.

RECOMMENDATION 1: We recommend that the Assistant Secretary of the Air Force (Financial Management and Comptroller) reprogram $16.1 million of Operations and Maintenance funds identified for stripping and repainting aircraft to other more pressing Air Force needs.

COMMENT: Nonconcur. The differences between the DoD/IG and the Air Force should be resolved before any reprogramming of funds is considered. Even if there is eventual agreement that some painting was excessive, we would recommend internal reprogramming within ACC and AETC to cover unfunded requirements as the best solution (subject to cost analysis).

RECOMMENDATION 2: We recommend that the Air Force Deputy Chief of Staff (Logistics)

a. Direct major air commands to revise their painting policies to ensure that command policies conform to existing Air Force policy

b . Place a moratorium on the establishment of additional corrosion control facilities for aircraft paint stripping and repainting.

c. Direct major air commands to make use of excess capacity at existing Air Force corrosion control facilities before awarding contracts for additional corrosion control capacity or before constructing new corrosion control facilities.

COMMENT:

a. Concur. HQ USAF/LGM has initiated an Air Force wide review of command painting procedures to ensure their guidance conforms to current Air Force policy. We anticipate the review will be completed by 30 Dec 95. In light of the concern over why aircraft are painted, i.e., corrosion prevention and/or professional appearance; we are considering a complete review/restructure of the current policy that provides concise guidance on both issues. With this in mind, we will solicit the support of your staff as well as the Aircraft Coating Technology Screening Committee to work this issue with us. ECD 1 Feb 96

b. Concur with the intent, however we do not agree with the recommendation to establish a moratorium on additional corrosion control facilities for stripping and painting. The process for which

these requests are planned, coordinated and approved do require a closer examination to ensure existing Air Force or interservice facilities are considered before additional facilities are approved. Furthermore, consideration must be given to potential environmental impacts of using facilities that predate the Environmental Protection Agency requirements. We will advise our major air commands to consider these factors before finalizing any plans to construct additional corrosion facilities.

c. Concur. The major air commands will be encouraged to optimize existing Air Force corrosion/paint capabilities before pursuing contract support especially when factors such as cost, scheduling and efficiency supports using organic resources. However, we have no objection to the major air command contracting for this service when it provides a considerable cost savings and the command is meeting the intent of the Air Force Corrosion Program.

RECOMMENDATION 3: We recommend that the Commander, Air Combat Command:

a. Change the command's aircraft painting cycle from a 2 year cycle to a 3 year cycle and notify field maintenance personnel of the new aircraft paint cycle.

b. Cancel plans for soliciting and awarding contracts for stripping and painting fighter aircraft.

COMMENT:

a. Nonconcur. Currently there is no requirement for fighter aircraft to be repainted at no less than the three year point. T.O. 1-1-4 states "for purposes of planning facility requirements, the expected paint system average life before the need for strip/paint is...flat (unsheltered)- 6 years." This assumes good maintenance of coating system and complete overcoat at approximately the mid-life point." The three year mid-life overcoat is approximate rather than mandated due to aircraft being exposed to varying chemical, physical and environmental situations at different locations. ACCR 66-11, section 2.3, states that fighter units "should plan to apply a complete topcoat every 24 months." The same section also states "use touch up to replace peeled or damaged paint." The regulation does not mandate a complete topcoat every 24 months; it does mandate that units are responsible for maintaining the aircraft coating system integrity for corrosion protection and appearance. The units have several options include spot maintenance painting, sectionalized painting, complete overcoat, and complete strip and repaint. The audit report definition of maintenance painting differs significantly from the T.O. 1-1-4 definition. As an alternative action, the new ACCI 21-105, Fabrication Program, now in draft, specifies that fighter aircraft will receive complete overcoat no earlier than 24 months and no later than 36 months. In addition, this instruction will place added emphasis for ACC units to perform maintenance painting to include touch-up and sectionalized painting to ensure coating system integrity and appearance. This instruction should be published by January 1996.

b. Nonconcur. Cost and production rates at Air Logistics Centers (ALC) resulted in the decision to consider contracting depot level fighter painting. The former ACC Regional Corrosion Control Facility demonstrated a capability to perform depot level strip and repaint operations at lower cost than ALCs. The ACC Contracting Program Squadron is evaluating the Fighter Corrosion Control Program as an option to the high cost of painting fighter aircraft at depots.

RECOMMENDATION 4: We recommend that the Commander, Air Education and Training Command, change the command's aircraft painting cycle from a 3-year paint cycle to a 4-year paint cycle and notify field maintenance personnel of the new aircraft paint cycle.

3

COMMENT: Nonconcur . The current guidance provided by AETC states each unit should look at their aircraft semiannually and rank order them for painting with regards to corrosion protection, soundness of the coating system, and appearance, in that order. This policy directs field units to normally plan on scuff sanding and overcoating at 36 months. Again, this is not intended to direct the painting of all aircraft in the command every 36 months. If units determine aircraft have sound paint systems, they need not paint them. It is merely a guideline that was established based on past history of what is required to provide adequate protection for our aircraft. It also falls within the parameters set in T.O. 1-1-4 which states repaint at "approximately" the mid-life point.

MANAGEMENT CONTROL PROGRAM: ADEQUACY OF MANAGEMENT CONTROL. We identified a material management control weakness for the Air Combat Command, Air Education and Training Command, Air Mobility Command, and AFMC as defined by DoD Directive 5010.38. The management controls at those major commands were not adequate to ensure that aircraft were not painted unnecessarily, and to ensure that major commands were not acquiring or constructing new, unneeded painting facilities. All recommendations, if implemented, will improve procedures for ensuring that aircraft are not painted unnecessarily and that major commands do not acquire additional new, unneeded painting facilities. We identified $16.1 million in potential monetary benefits associated with managements' implementation of the recommendations.

COMMENT: Concur in part . We agree that some of the existing management controls failed to ensure major commands were not acquiring or constructing new, unneeded painting facilities. These deficiencies have been corrected. We will continue to work with the MAJCOMs to insure the intent of the Air Force Corrosion Program is being followed.

Acting Director
Director of Maintenance
695-4900

Audit Team Members

This report was prepared by the Logistics Support Directorate, Office of the Assistant Inspector General for Auditing, DoD.

Shelton R. Young
John A. Gannon
Gerald P. Montoya
Elizabeth Freitag
James Mitchell