Audit Report

LIFE-CYCLE MANAGEMENT FOR
MILITARY AIRCRAFT LANDING GEAR

Report No. 99-260 September 29, 1999

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ARLINGTON, VIRGINIA 22202-2884

September 29, 1999

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

SUBJECT: Audit Report on Life-Cycle Management for Military Aircraft Landing Gear (Report No. 99-260)

We are providing this report for your information and use. We considered management comments on a draft of this report in preparing the final report. Comments on a draft of this report conformed to the requirements of DoD Directive 7650.3, and left no unresolved issues; therefore, additional comments are not required.

We appreciate the courtesies extended to the audit staff. For additional information on this report, please contact Mr. Charles M. Santoni at (703) 604-9051 (DSN 664-9051) (csantoni@dodig.osd.mil) or Ms. Delpha W. Martin at (703) 604-9124 (DSN 664-9124) (delpha@dodig.osd.mil). See Appendix C for the report distribution. Audit team members are listed inside the back cover.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-260 **September 29, 1999**
(Project No. 8AL-3002.02)

Life-Cycle Management for Military Aircraft Landing Gear

Executive Summary

Introduction. This report on the life-cycle management of military aircraft landing gear is the last of a series of three reports on the Life-Cycle Management Program for Military Aircraft Landing-Gear Components. The first report addressed the serialization of fracture-critical and landing-gear parts for the C-17 aircraft. The second report addressed whether the C-17 System Program Office was providing life-cycle management of landing-gear durability and supportability.

The Army does not own a substantial fleet of fixed-wing aircraft. Also, acquisition requirements for rotary-wing aircraft landing gear were not comparable to fixed-wing aircraft landing gear; therefore, we did not include Army aircraft in this audit after we completed the survey phase.

Navy aircraft have robust landing gear designed to withstand carrier landings. The Navy established a carefully defined schedule to control life-cycle management of landing gear. The Navy process minimizes the impact on operational readiness by identifying life-limited parts and structural problems of the landing gear early in the life cycle. The Navy uses parts serialization to track the number of landings on life-limited parts to ensure that life limits are not exceeded.

Objectives. The overall audit objective was to determine whether the Military Departments were including provisions for life-cycle management of landing gear in aircraft acquisition and modification programs. Specifically, we reviewed the Air Force fighter and transport aircraft landing-gear reliability. We also reviewed the implementation of management controls applicable to that objective.

Results. The Air Force fighter aircraft landing gear experienced lower reliability than transport aircraft as they aged. As a result, maintenance and repair and replacement costs for fighter aircraft landing gear increased substantially. Correspondingly, Class A and Class B landing-gear-related mishaps increased from 2 percent in FY 1989 through FY 1993 to 9 percent during FY 1994 through FY 1998. See the Finding section for details. Management controls were adequate as they applied to the audit objectives. See Appendix A for details of the review of the management control program.

Summary of Recommendations. We recommend that the Program Executive Officers for Fighters and Bombers and the Joint Strike Fighter address the life-cycle management of scheduled landing-gear maintenance during the acquisition of the F-22 aircraft and the Joint Strike Fighter, respectively.

Management Comments. The Air Force Principal Deputy Assistant Secretary (Acquisition and Management) and the Program Executive Officer, Joint Strike Fighter, concurred with the report finding and recommendations. A discussion of management comments is in the Finding section of the report, and the complete text is in the Management Comments section.

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Background

This report on the life-cycle management of military aircraft landing gear is the last in a series of three reports on the Life-Cycle Management Program for Military Aircraft Landing-Gear Components. The first report addressed the serialization of fracture-critical and landing-gear parts for the C-17 aircraft. The second report addressed whether the C-17 System Program Office was providing life-cycle management of landing-gear durability and supportability.

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Navy aircraft have robust landing gear designed to withstand carrier landings. The Navy established a carefully defined schedule to control life-cycle management of landing gear. The Navy process minimizes the impact on operational readiness by identifying life-limited parts and structural problems of the landing gear early in the life cycle. The Navy uses parts serialization to track the number of landings on life-limited parts to ensure that life limits are not exceeded.

The effectiveness of any modern military force depends on aircraft operational readiness. Landing-gear components are critical parts that can materially affect aircraft operational readiness. Aircraft system program offices can minimize the impact of critical parts on operational readiness and supply problems if they identify life-limited parts of the airframe early in the life cycle. Critical parts are identified through parts serialization, a method that identifies parts and assemblies, which bear common part numbers, with unique serial numbers. Proper serialization enables correlating individual parts with associated manufacturing, reliability, test, modification, and operational use records. System program offices must provide a schedule for the orderly replacement and repair of identified critical parts.

Objectives

The overall audit objective was to determine whether the Military Departments were including provisions for life-cycle management of landing gear in aircraft acquisition and modification programs. Specifically, we reviewed the reliability of Air Force fighter and transport aircraft landing gear. We also reviewed the implementation of management controls applicable to this objective. See Appendix A for details of the review of the management control program, audit scope and methodology, and a discussion of prior audit coverage.

Reliability of Aircraft Landing Gear

Landing gear of Air Force fighter aircraft experienced lower reliability than transport aircraft landing gear as they aged. The lower reliability for Air Force fighter aircraft landing gear occurred because the Air Force did not fully define the life-cycle management process of landing gear from acquisition through production and deployment. As a result, maintenance and repair and replacement costs for fighter aircraft increased substantially. Correspondingly, Class A[1] and Class B[2] landing-gear-related mishaps increased from 2 percent from FY 1989 through FY 1993 to 9 percent from FY 1994 through FY 1998.

Fighter Aircraft Design Life

Specifications define the design life of the F-15 and F-16 aircraft and indicate their expected load and usage. The lives of the F-15 and F-16 aircraft landing gear have extended beyond their original designed life. Based on operational maintenance records, the Air Force recognized that increased mishaps relating to fighter aircraft landing gear, coupled with aging aircraft concerns, necessitated a change in its maintenance concept (Air Force analyses are in Appendix B). By comparison, the Air Force maintenance approach to transport aircraft has resulted in highly maintainable landing gear with an extended life and reduced aircraft mishaps.

Maintenance for Transport and Fighter Aircraft

Historically, transport aircraft landing gear and fighter aircraft landing gear have been designed and maintained differently.

Transport Aircraft. The Air Force established a carefully defined depot maintenance program for life-cycle management of landing gear on transport aircraft. The program includes identifying life-limited parts and scheduling depot maintenance for the landing gear early in its life cycle. The transport aircraft experienced more landings per aircraft but less landing-gear-related mishaps than the fighter aircraft (see Appendix C for details).

Fighter Aircraft. Fighter aircraft landing gear have historically been maintained on the flight line rather than undergoing programmed depot

[1] Class A mishaps, as defined by the DoD, result when the total cost of reportable damage is $1 million or more; a DoD aircraft, missile, or spacecraft is destroyed; or an injury and/or occupational illness results in a fatality or permanent total disability.

[2] Class B mishaps, as defined by the DoD, result when the total cost of reportable property damage is $200,000 or more, but less than $1 million; an injury and/or occupational illness results in permanent partial disability; or when five or more personnel are inpatient hospitalized.

maintenance. As aircraft aged and remained in the fleet, flight-line maintenance became less effective, reliability levels decreased and maintenance and repair and replacement costs increased. On September 18, 1998, the Air Force issued a plan to remove and replace F-15 and F-16 aircraft landing gear based on the time it had been on the aircraft. Once the landing gear was removed, it would be sent for programmed depot maintenance. The new maintenance concept would transition the existing F-15 and F-16 fighter aircraft to a maintenance program similar to that used for transport aircraft. However, the programmed depot maintenance approach was not being implemented into the new acquisition programs for fighter aircraft.

Landing-Gear-Related Mishaps

Air Force landing-gear-related mishaps accounted for 9 percent of total Class A and Class B mishaps from FY 1994 through FY 1998, which is a significant increase from the 2 percent experienced from FY 1989 through FY 1993. Although the number of mishaps from FY 1994 through FY 1998 decreased from 299 to 215, landing-gear-related mishaps increased from 6 to 19 mishaps. The increase in landing-gear-related mishaps becomes even more significant because the average Air Force fleet has decreased from 8,335 to 6,468 aircraft. Fighter aircraft accounted for 39 percent of the decrease, from an average of 3,121 fighter aircraft from FY 1989 through FY 1993 to 2,398 from FY 1994 through FY 1998. Of 19 Class A and Class B landing-gear mishaps, 11 occurred on fighter aircraft and 2 occurred on transport aircraft. Conversely, of six Class A and Class B mishaps from FY 1989 through FY 1993, three occurred on fighter aircraft and none occurred on transport aircraft. Although mishaps cannot always be prevented through maintenance, aircraft having programmed landing-gear depot maintenance experienced reduced mishap rates (Appendix C). Transport aircraft averaged twice as many landings as fighter aircraft, yet they accounted for only a fraction of landing-gear-related mishaps.

Fighter Aircraft Replacements

The replacements for the F-15 and the F-16 aircraft are the F-22 and the Joint Strike Fighter, respectively. Historically, the Air Force has successfully extended the life of many aircraft systems. The lives of the F-15 and the F-16 aircraft landing gear have been extended beyond their original designed life.

It is not unreasonable to expect that the lives of the landing gear or their replacements (the F-22 and Joint Strike Fighter) will also be extended. The Air Force could capitalize on lessons learned from its experience with F-15 and F-16 landing-gear maintenance by applying those lessons as early as possible in the acquisition of the F-22 and Joint Strike Fighter aircraft. The F-22 and the Joint Strike Fighter aircraft programs can realize the following benefits from landing-gear programmed depot maintenance:

- increased combat effectiveness,
- lower risks of failure,
- increased life of component,
- lower field maintenance workload, and
- increased ability to project life-cycle costs associated with maintenance and components.

Correspondingly, a fully funded, planned depot maintenance program can avoid the following conditions:

- grounding an aircraft or an entire fleet,
- aircraft restricted use; that is, no hard landings or reduced loads, and
- an increased workload.

Recommendations, Management Comments, and Audit Response

1. We recommend that the Program Executive Officer for Fighters and Bombers include the life-cycle management and scheduled maintenance of landing gear during the F-22 aircraft acquisition process.

Management Comments. The Principal Deputy Assistant Secretary of the Air Force (Acquisition and Management) concurred with the recommendation and stated that the F-22 program uses a systematic approach to identify any potential life limited parts, and that information is used to determine when inspections and overhauls are required. Further, if durability limited parts or the need for periodic maintenance are identified, the Air Force will modify either the part design or the maintenance program as appropriate. To clarify statements in the report concerning the design life of the F-15 and F-16 programs, the Principal Deputy Assistant Secretary indicated that neither the F-15 nor the F-16 has requested a design life extension program beyond the original design life of 8,000 hours.

2. We recommend that the Program Executive Officer for the Joint Strike Fighter include the life-cycle management and scheduled maintenance of landing gear during the Joint Strike Fighter aircraft acquisition process.

Management Comments. The Program Executive Officer, Joint Strike Fighter, stated that the Joint Strike Fighter Program was in the concept demonstration phase, and that detailed aircraft maintenance and inspection requirements would not be determined until the engineering, manufacturing, and development phase. Life-cycle management was being performed on the entire Joint Strike Force Weapons System and methods to lower costs and increase effectiveness were continually being evaluated. The intent of the support concept for the Joint Strike Fighter, which is contained in the system's draft Joint Operational Requirements Document, is to design a more reliable aircraft that will eliminate the need for scheduled depot maintenance and optimize depot-level repair.

Audit Response. The Principal Deputy Assistant Secretary of the Air Force (Acquisition and Management) and the Program Executive Officer, Joint Strike Fighter, comments are fully responsive. The F-22 and the Joint Strike Fighter programs have identified systematic approaches to life-cycle management in identifying any potential life-limited parts. The report discussions on extensions to the design lives of the F-15 and F-16 should have referred to the landing gear and not the airframe. We modified the report accordingly.

Appendix A. Audit Process

Scope

We conducted this economy and efficiency audit from January 1998 through April 1999 and reviewed data from July 1993 through April 1999. To accomplish the objective, we completed the following actions:

- reviewed aircraft mishap data for the Army, Navy and Air Force;
- judgmentally selected for review Army aircraft Apache AH-64D and Commache RAH-66, Navy aircraft F-18 and AV8B, and Air Force aircraft C-17, F-22, and the Joint Strike Fighter;
- judgmentally selected a subset of Air Force fighter aircraft F-15, F-16, and F-117A, and transport aircraft C-130, C-135, and C-141;
- examined aircraft life-cycle management plans for landing-gear maintenance; and
- discussed issues on life-cycle management of landing gear with the program executive offices, system program offices, and operational commands.

DoD-Wide Corporate-Level Government Performance and Results Act Goals. In response to the Government Performance Results Act, the Department of Defense has established 6 DoD-wide corporate level performance objectives and 14 goals for meeting these objectives. This report pertains to achievement of the following objectives and goals.

- **Objective:** Maintain highly ready joint forces to perform the full spectrum of military activities. **Goal:** Recruit and maintain well-qualified military and civilian personnel. **(DoD-5.2)**
- **Objective:** Fundamentally reengineer the DoD and achieve a 21st century infrastructure. **Goal:** Reduce costs while maintaining required military capabilities across all DoD mission areas. **(DoD-6)**

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objective and goal. This report pertains to achievement of the following functional area objective and goal.

Logistics Functional Area.

Objective: Streamline logistics infrastructure. **Goal:** Implement most successful business practices (resulting in reductions of minimally required inventory levels). **(LOG-3.1)**

General Accounting Office High-Risk Area. The General Accounting Office has identified several high-risk areas in DoD. This report provides coverage of the Defense Inventory Management high-risk area.

Methodology

Use of Computer-Processed Data. We reviewed computer-processed data from the Air Force Safety Center's on-line database. We evaluated the competency and completeness of data. We established that data were accurate for the specified audit purpose.

Use of Technical Assistance. We used technical support from the Engineering Branch, Technical Assessment Division, Audit Followup and Technical Support Directorate, Office of the Assistant Inspector General for Auditing, DoD.

Audit Period and Standards. We conducted this economy and efficiency audit in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD, and accordingly included such tests of management controls as we deemed necessary.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available upon request.

Management Control Program Review

DoD Directive 5010.38, "Management Control (MC) Program," August 26, 1996, requires DoD managers to implement a comprehensive system of management controls that provides reasonable assurance that programs are operating as intended and to evaluate the adequacy of those controls.

Scope of Review of Management Control Program. In accordance with DoD Directive 5000.1, "Defense Acquisition," March 15, 1996, and DoD Regulation 5000.2-R, "Mandatory Procedures for Major Defense Acquisition Programs (MDAPS) and Major Automated Information System (MAIS) Acquisition Programs," March 16, 1996, acquisition managers are to use program cost, schedule, and performance parameters as control objectives to carry out the requirements of DoD Directive 5010.38. Accordingly, we limited our review to management controls directly related to life-cycle management of

landing gear. Management controls were adequate as they applied to the overall objective. Because we did not identify a material management control weakness, we did not assess the adequacy of management's self-evaluation of the controls.

Summary of Prior Coverage

During the last 5 years, the General Accounting Office and Military Department audit agencies have not issued reports specifically addressing life-cycle management for Air Force aircraft landing gear.

The Inspector General, DoD, issued the following two reports relating to our audit objectives:

Report No. 99-114, "C-17 Program Serialization of Airframe Fracture-Critical and Landing-Gear Reliability-Critical Parts," March 24, 1999.

Report No. 97-104, "Waivers and Deviations for the C-17 Aircraft," March 6, 1997.

Appendix B. Programmed Depot Maintenance for Fighter Aircraft Landing Gear

The Air Force recognized that the F-15 and F-16 aircraft landing-gear reliability was at an unacceptable level. This condition, coupled with aging aircraft concerns, necessitated a change in the maintenance concept. The Air Force performed two separate analyses on the F-15 and F-16; both analyses showed that fighter aircraft landing gear should either be replaced, based on the time on the aircraft, or a planned depot maintenance program should be developed.

The Air Force analyzed the mean time between failures and maintenance hours per flying hour, deficiency reports, mishap reports, not reparable this station reports, condemnation reports, and depot incoming inspections. As an example, the Air Force analyzed the F-16 mean time between failures and their associated costs, and used the analysis to project associated savings if planned depot maintenance was fully funded. Table B-1 shows how five landing-gear components can help the Air Force avoid costs of $128.1 million over 11 years, if planned depot maintenance is implemented.

Table B-1. Planned Depot Maintenance Cost Analysis For the F-16 Fighter Aircraft

Component	Mean time between failures (hours) with planned depot maintenance	Cost with planned depot maintenance	Mean time between failures (hours) without planned depot maintenance	Cost without planned depot maintenance
Left-hand main landing-gear shock strut	8,300	$380,140	3,917	$506,680
Right-hand main landing-gear shock strut	8,300	$380,140	3,043	$548,437
Left-hand main landing-gear drag brace	11,000	$487,444	5,942	$650,962
Nose landing-gear link assembly	6,000	$51,243	4,345	$78,189
Nose landing-gear drag brace	7,400	$407,392	5,138	$473,413

The analysis further showed that the 7 major components with the greatest mean time between failures were likely to cause 129 possible Category II failures and 233 possible Category IV failures over the following year.

In conclusion, the Air Force analysis determined that fighter aircraft landing gear should either be replaced, based on the time the landing gear has been on the aircraft, or programmed depot maintenance should be performed. The report stated that increased combat effectiveness would result from an increase in maintenance supportability. Other benefits include the following:

- an increase in combat effectiveness resulting from an increase in maintenance supportability,
- a lower failure risk,
- an increased component life,
- a decrease in field maintenance workload, and
- an ability to project life-cycle costs associated with maintenance and components.

Further, the analysis stated that with a fully funded, programmed depot-maintenance policy, the following actual events of the 1980's could have been avoided:

- an entire fleet was grounded,
- the number of individual aircraft being grounded increased,
- aircraft use restricted (no hard landing, reduced loads),
- components made with inadequate base metal,
- defective components used to prevent widespread aircraft grounding,
- crisis management,
- low morale, and
- an increased workload and fewer available skilled personnel.

Appendix C. Aircraft Landing-Gear Mishap Rates

The C-130, C-135, and C-141 transport aircraft landing gear were maintained using the programmed depot maintenance concept, while the F-15, F-16, and F-117A fighter aircraft landing gear were not.

Landing-gear-related mishaps accounted for 9 percent of total Class A and Class B mishaps during the 5-year period from FY 1994 through FY 1998, up from 2 percent in the 5-year period of FY 1989 through FY 1993. Although the total number of mishaps decreased from 299 to 215, the landing-gear-related mishaps increased from 6 to 19. Of the 19 Class A and Class B landing-gear mishaps on all categories of aircraft, from FY 1994 through FY 1998, 11 occurred on fighter aircraft and 2 on transport aircraft.

Table C-1. Total Aircraft Class A and Class B to Landing-Gear-Related Mishaps for FYs 1989-1993 and FYs 1994-1998

	Total Mishaps	Landing-Gear-Related Mishaps	Percent
FYs 1989-1993	299	6	2
FYs 1994-1998	215	19	9

Although mishaps cannot always be prevented through maintenance, programmed depot maintenance on aircraft landing gear reduced mishap rates as demonstrated in Tables C-2 and C-3. Transport aircraft averaged from 1,251 to 2,428 landings per aircraft with 2 mishaps. Correspondingly, fighter aircraft averaged from 642 to 910 landings per aircraft with 11 mishaps.

Table C-2. Transport and Fighter Aircraft Landing-Gear-Related Mishap Data for FYs 1989-1993

Aircraft	Class of mishaps A	B	Total landings/	Average aircraft in inventory =	Average landings per aircraft
C-130	0	0	1,598,297/	710	= 2,251
C-135	0	0	1,164,150/	759	= 1,534
C-141	0	0	847,992/	261	= 3,249
Total	**0**	**0**			
F-15	0	0	830,455/	878	= 946
F-16	1	1	1,573,230/	1,686	= 933
F-117A	0	1	21,314/	54	= 395
Total	**1**	**2**			

Table C-3. Transport and Fighter Aircraft Landing-Gear-Related Mishap Data for FYs 1994-1998

Aircraft	Class of mishaps A	B	Total landings/	Average aircraft in inventory =	Average landings per aircraft
C-130	0	0	1,410,901/	689	= 2,048
C-135	1	1	820,635/	656	= 1,251
C-141	0	0	521,941/	215	= 2,428
Total	**1**	**1**			
F-15	0	2	680,005/	747	= 910
F-16	2	4	1,326,249/	1,521	= 872
F-117A	2	1	36,595/	57	= 642
Total	**4**	**7**			

Appendix D. Report Distribution

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Department of the Air Force Comments

Final Report Reference

DEPARTMENT OF THE AIR FORCE
WASHINGTON DC

OFFICE OF THE ASSISTANT SECRETARY

13 AUG 1999

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

FROM: SAF/AQ

SUBJECT: Life-Cycle Management for Military Aircraft Landing Gear
DODIG Material Code 8AL-3002.02

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

The Air Force concurs with the DoDIG recommendation to address life-cycle management of scheduled landing gear maintenance during the acquisition of the F-22. The F-22 program uses a systematic approach to identify any potential life limited parts. The information will be used to determine when inspections and overhaul are required. For example, the landing gear is currently in fatigue testing where both the nose and main gear will be subjected to 4 lifetimes of duty cycles. Testing will monitor bushing wear and establish lubrication intervals. The results will be incorporated into the gear maintenance technical orders. Currently, the analysis indicates that the landing gear components will meet the full 8,000 equivalent flight hours/20 year life of the aircraft. Therefore, we have not scheduled depot maintenance at this time. However, our analysis will continue. Should we identify durability limited parts or the need for periodic maintenance, we will either modify the design or appropriately modify the maintenance program.

The report makes certain statements about the F-15 and F-16 programs which require clarification. The F-15 program has not requested a design life extension program beyond the original design life of 8,000 hours. Although the Air Force is flying the F-16 at increased usage rates, higher gross weights, and higher G-force loading, the F-16 is not flying beyond its original design life of 8,000 hours and has not requested a design life extension program.

Pages 3 and 4

For additional information please contact Lt Col Bruce Stark, F-22 Lead Program Element Monitor at (703) 588-1233.

DARLEEN A. DRUYUN
Principal Deputy Assistant Secretary
(Acquisition & Management)

Joint Strike Fighter Program Comments

JOINT STRIKE FIGHTER PROGRAM
1213 Jefferson Davis Highway, Suite 600
Arlington, Virginia 22202-4304

July 8, 1999

MEMORANDUM FOR THE DEPARTMENT OF DEFENSE INSPECTOR GENERAL
(ACQUISITION MANAGEMENT DIRECTORATE)

Subject: Audit Report on Life-Cycle Management for Military Aircraft Landing Gear (Project No. 8AL-3002.02)

Reference: DoD IG Report, Life Cycle Management of Aircraft Landing Gear, 16 Jun 99

We are performing life cycle management of the entire JSF weapon system. This ongoing process involves logistics and maintenance experts from the weapons system contractors, Air Force, Navy, Marine and foreign customers. We continually evaluate methods to lower costs and increase effectiveness. The JSF program is currently in the concept demonstration phase and we will not determine detailed aircraft maintenance and inspection requirements until EMD

While PDM for the landing gear has proven in the past to be cost effective, our Joint Operational Requirements Document (JORD) (currently in final coordination and expected to be signed by all services by the end of 1999) states that "the JSF support concept should provide for a cost effective, total life-cycle logistics support... the JSF support concept should eliminate PDM and optimize depot level repairs." The intent is to design a more reliable aircraft that eliminates the need for scheduled depot level maintenance that has been a significant cost driver for legacy programs. We are therefore applying new technology to meet the warfighters' requirements as well as reduce costs and manpower requirements. The JSF program is making use of both lessons learned and advanced technology in support concept decision making. Ultimately trade studies will be used to determine the optimum maintenance plan for the landing gear.

For additional information please contact, Lt Col Bill Kobren, IPT Lead for ILS Planning at (703) 602-7390 ext 6640.

Respectfully,

MICHAEL A. HOUGH
MAJOR GENERAL, USMC

Audit Team Members

The Acquisition Management Directorate, Office of the Assistant Inspector General for Auditing, DoD, prepared this report.

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